

HRP Associates, Inc.

ENVIRONMENTAL/CIVIL ENGINEERING & HYDROGEOLOGY

May 23, 2001



CERTIFIED MAIL



RDMS DocID 00100824

Ms. Carolyn Casey
Environmental Engineer
Office of Site Remediation and Restoration
U.S. Environmental Protection Agency
New England Region
1 Congress Street, Suite 1100 (HBT)
Boston, MA 02114-2023

RCRA RECORDS CENTER
FACILITY MACDERMID
EPA ID: CT000164599
FILE NO: R-13
OTHER: RDMS# 100824

RE: RCRA CORRECTIVE ACTION STABILIZATION REPORT, MacDERMID, INC., 526 HUNTINGDON AVENUE, WATERBURY, CONNECTICUT (HRP #MAC0036.CA)

Dear Ms. Casey:

On behalf of MacDermid, Inc. located at 526 Huntingdon Avenue, Waterbury, Connecticut, HRP Associates, Inc. (HRP) has prepared and enclosed the attachments listed below. These attachments were prepared in response to your April 4, 2001 comments on the "RCRA Corrective Action Stabilization Report" dated March 16, 2001.

Attachment 1:	Responses to EPA Comments Dated April 9, 2001
Attachment 2:	Revised RCRA Corrective Action Stabilization Report

Since more than 70% of the March 16, 2001 Stabilization Report's text was revised to address the April 6, 2001 comments, an entire copy of the revised Stabilization Report's text has been provided in Attachment 2. Included in Attachment 2 are also the tables, figures and appendices which were revised/added to address the April 9, 2001 comments. Please insert all revised/added pages included in Attachment 2 in the March 16, 2001 Stabilization Report.

HRP is currently in the process of preparing a letter report, which details the installation and sampling procedures for the additional ground water monitoring wells, discussed during your April 4, 2001 meeting at the Huntingdon Avenue site.

If you have any questions regarding these revisions/additions to the Stabilization Report, please feel free to contact HRP at (860) 793-6899.

Sincerely,

HRP ASSOCIATES, INC.

Richard D. McFee, P.E.

Associate Vice President, Engineering

cc: Greg Strong, MacDermid, Inc.
Mary Anne Tiltona, MacDermid, Inc.
Rick Nave, MacDermid, Inc.
Joseph Wellington, Carmody & Torrance, LLP

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ATTACHMENT 1

**RESPONSES TO EPA COMMENTS
DATED APRIL 9, 2001**

ATTACHMENT 1

On April 12, 2001, MacDermid, Inc., located at 526 Huntingdon Avenue in Waterbury, Connecticut (CTD001164599) received comments from the Region I of the Environmental Protection Agency (EPA) on the March 16, 2001 RCRA Corrective Action Stabilization Report ("Stabilization Report") for the Huntingdon Avenue site. The EPA comments, which are dated April 9, 2001, are presented below. Following each EPA comment are MacDermid, Inc.'s responses, which were prepared by HRP Associates, Inc.

Included in Attachment #2 of this submission is a revised copy of the entire Stabilization Report's text and tables. Revised or added figures and appendices for the Stabilization Report are also provided in Attachment #2. The specific page(s)/figure(s) of the Stabilization Report, which were revised or added to address EPA's April 9, 2001 comments, are provided in each response. Please update the March 16, 2001 Stabilization Report by inserting all revised pages/figures included in Attachment #2 into the March 16, 2001 document.

GENERAL COMMENTS

1. ***Please show MacDermid's property line on an appropriately scaled map. Include all property on the north side of Huntingdon Avenue.***

Response:

Included in Attachment 2 of this submission is a copy of the new map, Figure 2A, which is entitled "Property Line – North of Huntingdon Avenue". A new paragraph has also been added to the end of Section 1.2 (page 4) to include a reference to Figure 2A. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

<u>March 16, 2001 Stabilization Report</u>		<u>Attachment 2</u>
Title Page of March 16, 2001 Stabilization Report	Replace with→	Title Page with May 21, 2001 date and Revision Number 1
Page 2 of Table of Contents (Listing of Figures and Appendices)	Replace with→	Page 2 of Table of Contents (Listing of Figures and Appendices)
Page 4	Replace with→	Page 4
Not Included	Add→	Figure 2A

2. ***Please verify if the two rusted 55-gallon drums located north of AOC-A are on MacDermid's property. Even if they are not, a release from this disposal area, hydraulically upgradient of MacDermid property, could be impacting groundwater at AOC-A and some follow-up may be necessary.***

Response:

The two rusted 55-gallon drums appear to be located on MacDermid's property. The "Potential Releases" of Section 2.1 has been revised to reference the rusted drums and the steel stack, which were observed during your April 4, 2001 site visit.

The "Data Gap" of Section 2.1 has also been revised to include a reference to the rusted 55-gallon drums and the steel stack. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001 Stabilization Report		Attachment 2
Page 8	Replace with→	Page 8
Page 11	Replace with→	Page 11

3. ***There was obvious trespassing in the area of AOC-A based on the remnants of the bonfire, broken bottles and plastic cups in the area. MacDermid should consider available options for securing this property in consideration of potential trespasser exposure and general liability.***

Response:

The following portions of Section 2.1 have been revised to address this comment and April 4, 2001 observations.

Heading	Revision
AOC Description	Added a description of the April 4, 2001 observations to the end of the first paragraph.
Human Exposure	Added a description of the April 4, 2001 observations to the "Rationale" column for the Surface Soil (<2 ft) – Contaminated Media Table
Human Exposure	Added a description of the April 4, 2001 observations to the "Rationale" column for the Surface Soil (<2 ft) – Human Receptors Table
Data Gap	Added the bullet "Evaluate the need for securing the Area of AOC-A from potential trespassers."

Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001
Stabilization Report

Attachment 2

Page 7	Replace with→	Page 7
Page 9	Replace with→	Page 9
Page 10	Replace with→	Page 10
Page 11	Replace with→	Page 11

4. ***Generally, if it is unknown if surface water poses a risk to recreators, it would also be unknown if sediment poses a risk, unless there was data to support that no risk exists.***

Response:

Since there are no surface waters located on the MacDermid, Inc. site, the sediment pathway does not pose a risk to workers, construction workers or trespassers. The sediment located in the Naugatuck River could potentially pose an exposure route to residents and recreators. However, due to the reasons listed below, it is unlikely that the sediment in the Naugatuck River has been impacted by MacDermid, Inc.'s operations.

- (1) Ground water collected to date only shows exceedances slightly above the Surface Water Protection Criteria for zinc in the furthest downgradient wells.
- (2) AOCs are located at least 1,500 feet northwest of the Naugatuck River.
- (3) Located between MacDermid, Inc. and the Naugatuck River are other manufacturing activities (e.g., scrap metal recycler and a brass mill) and Route 8.

Since additional ground water monitoring wells will be installed, as necessary, to verify ground water flow direction and ground water quality exiting the MacDermid, Inc. site, the Contaminated Media Table and Human Receptors Table for each AOC (i.e., AOC-A through AOC-K) have been revised as follows:

- For the pathway "sediment" in the Contaminated Media Table, the "X" has been moved to the **Unknown Column** and a **Rationale** has been provided.
- For the contaminated media "Surface Water" in the Human Receptors Table, the words "**and Sediment**" have been added. If this table included a stand-alone "Sediment" row, this row was eliminated.

Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

AOC	March 16, 2001 Stabilization Report		Attachment 2
A	Pages 9 & 10	Replace with→	Pages 9 & 10
B	Pages 13 & 14	Replace with→	Pages 13 & 14
C	Pages 15 & 16	Replace with→	Pages 16 & 17
D	Pages 19 & 20	Replace with→	Pages 21 & 22
E	Pages 30 & 31	Replace with→	Pages 34 & 35
F	Pages 34 & 35	Replace with→	Pages 38 & 39
G	Pages 38 & 39	Replace with→	Pages 43 & 44
H	Pages 41 & 42	Replace with→	Pages 47 & 48
I	Pages 44 & 45	Replace with→	Page 52
J	Pages 47 & 48	Replace with→	Pages 55 & 56
K	Pages 57 & 58	Replace with→	Page 66
L	Pages 60 & 61	Replace with→	Pages 68 & 69

5. *Please provide copies of available aerial photographs.*

Response:

Copies of the 1965, 1970, 1975, 1980, 1986, and 1990 aerial photographs have been included in Attachment 2 as Appendix O. A copy of the 1994 aerial photograph was not available for copying. Section 2.5 (page 21) has been revised to include the reference for Appendix O. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001 Stabilization Report		Attachment 2
Table of Contents (List of Appendices)	Replace with→	Table of Contents (List of Appendices)
Page 21	Replace with→	Page 24
Not Included	Add→	Appendix O

6. *For UST areas where fuel oils were/are stored, total petroleum hydrocarbons and polyaromatic hydrocarbons should be included in the analysis. If not previously included, the lack of this analysis should be listed as a data gap so that this analysis will be included in future sampling.*

Response:

To date, total petroleum hydrocarbons analyses have been limited to the floating petroleum product detected in monitoring well MW-108 on February 8, 2001. The "Data Gap" section for each AOC has been revised to include the following statement.

- Presence of total petroleum hydrocarbons in the ground water. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.

Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

<u>March 16, 2001 Stabilization Report</u>		<u>Attachment 2</u>
Page 14	Replace with →	Page 15
Page 16	Replace with →	Page 18
Page 20	Replace with →	Page 23
Page 32	Replace with →	Page 36
Page 35	Replace with →	Page 40
Page 39	Replace with →	Page 45
Page 42	Replace with →	Page 49
Page 45	Replace with →	Page 53
Page 59	Replace with →	Page 67
Page 61	Replace with →	Page 70

Pages 11 and 56 of the Stabilization Report were also revised to address this comment. Since these pages were listed for replacement in previous comment responses, they were not listed above.

7. Any tentative identified compounds (TICs) should be noted and discussed.

Response:

The only additional TIC identified to date (other than total petroleum hydrocarbons and polyaromatic hydrocarbons) is tin. Tin is contained in the spent copper etchant received from off-site customers and off-site MacDermid, Inc. facilities for recycling. Tin was not analyzed for during the 1995 and 2001 ground water sampling events.

The "Data Gap" section of each AOC has been revised to indicate the need to analyze for tin in future ground water sampling events.

Pages 11, 15, 17, 22, 36, 39, 44, 48, 53, 56, 67, and 69 of the Stabilization Report were revised to address this comment (listed in previous comment responses for replacement).

8. ***In the tables showing Contaminated Media, in the rationale column for each AOC where the CTDEP RSR volatilization criteria is mentioned, please be more specific as to which criteria was used for comparison (i.e., residential and/or industrial).***

Response:

The Stabilization Report has been revised to indicate that industrial/commercial volatilization criteria was used for comparison.

Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001 Stabilization Report		Attachment 2
List of Acronyms	Replace with→	List of Acronyms
Page 18	Replace with→	Page 20
Page 29	Replace with→	Page 33
Page 37	Replace with→	Page 42
Page 40	Replace with→	Page 46
Page 46	Replace with→	Page 54
Page 57	Replace with→	Page 65

Pages 8, 13, 21, 22, 34, 38, 43, and 55 of the Stabilization Report were also revised to address this comment. Since these pages were listed for replacement in previous comment responses, they were not listed above.

9. ***A data gap should be identified for each AOC Contaminated Media table where the "unknown" column is checked unless it is clear that no pathway exists (e.g., For AOC G Groundwater Control, there is a SWPC exceedances for zinc but the lack of any surface water data is not listed as a data gap).***

Response:

The "Data Gap" section of each AOC listed in the Stabilization Report has been modified to include the following statement:

- Impact (if any) to the Naugatuck River's surface water and sediment.

Pages 11, 15, 18, 23, 36, 40, 45, 49, 53, 56, 67, and 70 of the Stabilization Report (see Attachment #2) were revised to address this comment (listed in previous comment responses for replacement).

- 10. *Text summaries of contamination detected for each AOC should also include visual and olfactory observations and elevated PID readings (e.g., Boring log for GZ-3 notes CINDERS/ASH (FILL) from .5-2.5 foot depth; boring logs for GZ-8 and GZ-9 note spoils had a sweet odor; and boring log for GZ-8 also notes sample S-8 was copper-colored).***

Response:

The "Potential Release" or "Human Exposure" sections of AOCs A, B and D through I were revised to address this comment.

Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001 Stabilization Report		Attachment 2
Page 12	Replace with→	Page 12
Page 17	Replace with→	Page 19
Page 32	Replace with→	Page 37
Page 43	Replace with→	Page 51

Pages 8, 24, 42, and 46 of the Stabilization Report (see Attachment #2) were also revised to address this comment. Since these pages were listed for replacement in previous comment responses, they were not listed above.

SPECIFIC COMMENTS

1. ***Section 1.2, page 2. Please revise this paragraph to more accurately reflect that the Gear Street building was used for the manufacturing of inks but that this operation rarely or no longer takes place at the facility.***

Response:

Section 1.2 of the Stabilization Report has been revised to address this comment. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

**March 16, 2001
Stabilization Report**

Attachment 2

Page 2

Replace with→

Page 2

2. ***Section 2.1, page 7. Please clarify if AOC-A was used prior to 1978/1979 timeframe when it was reportedly used by MacDermid. If so, also include information about who used the AOC and for what reasons (i.e., Was this area used by Waterbury Steel Ball Company?)***

Response:

The "AOC Description" for AOC-A was revised to address this comment. Please see revised page 7 included in Attachment #2 (this page has been revised to address previous comments).

3. ***page 9. The information regarding surface water results contained in the fourth row and column of this table conflicts with that presented in Table 3. Please correct the tables as appropriate.***

Response:

Table 3 of the Stabilization Report was revised to address this comment. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

**March 16, 2001
Stabilization Report**

Attachment 2

Table 3 (pages 1 of 2 and 2 of 2)

Replace with→

Table 3 (pages 1 of 2 and 2 of 2)

4. **page 11. The lateral extent of the cover for this area should also be identified as a data gap as noted on page 10 under the rationale for surficial soil.**

Response:

The "Data Gap" section of AOC-A has been revised to address this comment. Please see revised page 11 included in Attachment #2 (this page has also been revised to address previous comments).

5. **Section 2.5, page 29. The last statement in the second paragraph is misleading. Only one soil sample was analyzed for PCBs and the detection limits were elevated.**

Please provide a copy of the gas chromatographic trace, and a copy of the reference chromatogram for the analysis of the light non-aqueous phase petroleum product.

Response:

The "Human Exposure" section of AOC-E was revised to address these comments. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001 Stabilization Report		Attachment 2
Index of Appendix F	Replace with→	Index of Appendix F
Appendix F	Add →	Pages 47-? To Appendix F
Appendix F	Add →	Pages 47-? To Appendix F

Page 33 of the Stabilization Report (see Attachment #2) was also revised to address this comment (see Attachment 2). Since this page was listed for replacement in previous comment responses, it was not listed above.

6. **Section 2.7, page 38. The rationale for surface soil contained in this table mentions 0.013 µg/kg of PCE at TP-5. Please verify this information, Table 10 shows mg/kg as the units.**

The rationale for surface soil discusses SWPC but should likely be referencing the GB PMC instead.

Response:

Page 43 was revised to indicate the concentration of PCE detected in TP-5 was 0.013 mg/kg and not 0.013 µg/kg. The concentration indicated in Table 10 is

correct. Page 43 was also revised to indicate the GB PMC standards for surface soil.

A revised copy of page 43 is provided in Attachment #2. This page has also been revised to address General Comment #4.

7. ***Section 2.9, page 43. The last bullet states that DEP approval was requested prior to backfilling the excavation. Please provide a copy of the approval letter.***

Response:

The "Known Release" section for AOC-I has been revised to indicate that no written CT-DEP approval is known to have been received for the backfilling of the ink spill area's excavation. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

March 16, 2001 Stabilization Report		Attachment 2
Page 43	Replace with→	Page 51

8. ***Tables***

- a. ***The more conservative hexavalent chromium standard should be used instead of the trivalent standard if speciation data is not available.***
- b. ***In Table 1, for AOC-L, please revise "transfer" to read "transformer".***
- c. ***This table provides data for samples collected in April 1986. Please provide copies of these laboratory reports.***
- d. ***The data contained in this table for MW-101 for sampling conducted 3/95 does not agree with the laboratory reports for MAC-6 contained in Appendix E pages 34-36 and 41. Please revise the summary tables as appropriate.***
- e. ***The data contained in Table 9 for at least MW-108 and MW-109 do not agree with the laboratory reports contained in Appendix F. In addition, vinyl chloride, chloroethane, and p-isopropyltoluene are not reported in the summary tables as being detected. Please revise the summary as appropriate.***

Response:

Listed below are the tables which were revised to address all comments listed above, except for Comment 8c. The laboratory report, requested under comment

8c could not be located and may no longer exist. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

<u>Comment</u>	<u>March 16, 2001 Stabilization Report</u>		<u>Attachment 2</u>
8a	Table 2	Replace with→	Table 2
	Table 4	Replace with→	Table 4
	Table 5	Replace with→	Table 5
	Table 6	Replace with→	Table 6
	Table 7	Replace with→	Table 7
	Table 8	Replace with→	Table 8
	Table 9	Replace with→	Table 9
	Table 10	Replace with→	Table 10
	Table 11	Replace with→	Table 11
	Table 12	Replace with→	Table 12
	Table 13	Replace with→	Table 13
	Table 14	Replace with→	Table 14
	Table 15	Replace with→	Table 15
8b	Table 16	Replace with→	Table 16
	Table 17	Replace with→	Table 17
8b	Table 1 (page 2 of 2)	Replace with→	Table 1 (page 2 of 2)
8d	Table 3	Replace with→	Table 3
8e	Table 9	Replace with→	Table 9

9. ***Appendix E and F. The well designations in the 1995 Groundwater Data Summary for VOCs Cyanide and Fluoride do not agree with the designations in the 1995 Groundwater Data Summary for Metals or the 2001 Groundwater Index. Please correct these tables as appropriate and verify that all tables are cross-checked throughout the report and against the maps. Submit copies of the older maps showing well locations and previous used well designations.***

Response:

The Title Page and well designation summaries for Appendix E and F have been revised to address this comment. To the best of our knowledge, the revised tables in Attachment 2 correspond with the sampling results presented in Appendix E and F. A copy of the Site Plan (Figure 2) prepared by GeoEnvironmental, Inc. dated April 19, 1995 has been included at the end of Appendix E. Appendix F has also been updated to include the chain-of-custody forms.

Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

**March 16, 2001
Stabilization Report**

Attachment 2

Appendix E Title Page	Replace with→	Appendix E Title Page
Appendix E Well Designation Page	Replace with→	Appendix E Well Designation Page
Not Included	Add →	Site Plan, Appendix E
Appendix F Title Page	Replace with→	Appendix F Title Page
Appendix F Well Designation Page	Replace with→	Appendix F Well Designation Page
Not Included	Add →	Chain-of-Custody, Appendix F

10. ***Appendix G. February 2001 WELL RECEPTOR SURVEY. There is no page 3, please verify if there is a page missing or if the pages were number incorrectly.***

Response:

Page 3 is Figure 2, Receptor Survey Base Map, which is provided in a plastic sleeve.

11. ***Section 4.0, page 7. It is necessary to know the status of the five water supply wells identified in the 1974 State of Connecticut Water Resources Bulletin No. 19. If these wells are still in use, the uses should be known to evaluate potential exposure routes and potential human health impacts. In addition, the pumping rate and frequency of water withdrawal should be known to evaluate any potential effects on groundwater and contaminant migration.***

Response:

Two of the five water supply wells listed on page 6 were formerly located at MacDermid, Inc.'s Gear Street building, when it was occupied by the former Waterbury Steel Ball Company. To the best of MacDermid, Inc.'s knowledge, the use of these wells (#12 and #12A) was eliminated prior to MacDermid, Inc.'s occupancy in 1987. The operational status of the three (3) remaining industrial waste supply wells is not known at this time. Page 6 of the Well Receptor Survey report has been revised to include this additional information. Page 4 and Table 2 of the Well Receptor Survey report were also revised to indicate the Data Source(s) which were used to determine that the site was connected to public water. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

**March 16, 2001
Stabilization Report**

Attachment 2

Appendix G, pages 4 through 7

Replace with→

Appendix G, pages 4 through 7

Appendix G, Title Page

Replace with→

Appendix G, Title Page

- 12. Figure 2. There are several lots where no information is provided, no even a lot number. Please clarify if these lots are vacant and if this was confirmed by a visual inspection.**

Response:

Figure 2 of the Well Receptor Survey report was revised to provide information on all lots. Listed below are the specific pages of the Stabilization Report that have been revised/added to address this comment.

**March 16, 2001
Stabilization Report**

Attachment 2

Appendix G, Figure 2

Replace with→

Appendix G, Figure 2

**RCRA CORRECTIVE ACTION
STABILIZATION REPORT**

**MacDERMID, INC.
526 HUNTINGDON AVENUE
WATERBURY, CT 06702**

EPA I.D. NO. CTD001164599

HRP #MAC0036.CA

March 16, 2001

Revised:

May 21, 2001

Prepared by:

**Richard D. McFee, P.E.
Associate Vice President
Engineering Services**

Submitted to:

**Mr. Greg Strong
MacDermid, Inc.
245 Freight Street
Waterbury, CT 06702**

Submitted by:

**HRP Associates, Inc.
Engineering & Geology
167 New Britain Avenue
Plainville, CT 06062**

Date: May 21, 2001
Rev. No. 1

ATTACHMENT 2
REVISED RCRA CORRECTIVE ACTION
STABILIZATION REPORT

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- B TRC's September 4, 1993 Final RCRA Facility Assessment Report
- C Boring Logs
- D Description of CT-RSR Standards
- E 1995 Groundwater Laboratory Reports
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- N December 5, 2000 Gear Street Sump Spill Report
- O Copies of Aerial Photographs

LIST OF ACRONYMS

AOC	=	Area of Concern
B	=	Boring
COC	=	Constituent of Concern
CT-DEP	=	Connecticut Department of Environmental Protection
CT-RSR	=	Connecticut Remedial Standard Regulation
DEC	=	Direct Exposure Criteria
DEP	=	Department of Environmental Protection
EPA-NE	=	Environmental Protection Agency of New England
EPA	=	Environmental Protection Agency
FRP	=	Fiber-Reinforced Plastic
GWPC	=	Groundwater Protection Criteria
HRO	=	High Range Organics
I/C	=	Industrial/Commercial
IPC	=	Industrial Pollution Control
MOH	=	Metal Hydroxide
MSDS	=	Material Safety Data Sheets
MW	=	Monitoring Well
PCBs	=	Polychlorinated Biphenyls
PMC	=	Pollutant Mobility Criteria
RCRA	=	Resource Conservation and Recovery Act
RCSA	=	Regulations of Connecticut State Agencies
RFA	=	RCRA Facility Assessment
SPLP	=	Synthetic Precipitation Leaching Procedure
SWPC	=	Surface Water Protection Criteria
TCLP	=	Toxicity Characteristic Leaching Procedure
TP	=	Test Pit
TRC	=	TRC Environmental Corporation
UST	=	Underground Storage Tank
VC	=	Volatilization Criteria
VOCs	=	Volatile Organic Compounds
WWTS	=	Wastewater Treatment System

1.0 INTRODUCTION

MacDermid, Inc., has a facility located at 526 Huntingdon Avenue in Waterbury, Connecticut (see Figure 1), which is the subject of this report. This facility is currently regulated under the Resource Conservation and Recovery Act (RCRA) as a generator and a treatment storage, and disposal facility (TSDF) of hazardous waste.

Since the Huntingdon Avenue facility has operated as a TSDF, MacDermid, Inc. is subjected to the RCRA Corrective Action Program. The New England office of the Environmental Protection Agency (EPA-NE) has identified MacDermid, Inc.'s Huntingdon Avenue facility as a high priority RCRA Corrective Action TSDF. EPA-NE has set a goal of achieving stabilization or final remedy at each high priority RCRA TSDF in New England by the year 2003.

The EPA-NE considers a facility to be stabilized, if it meets the following two (2) environmental indicators:

- Human Exposures Controlled; and
- Groundwater Releases Controlled.

A copy of EPA's July 29, 1994 memorandum, which provides final definitions and guidance for the two (2) environmental indicators, is provided in Appendix A.

In efforts to achieve the goal of stabilization by the year 2003, MacDermid, Inc. has initiated a voluntary RCRA Corrective Action program at its Huntingdon Avenue facility. Presented in this report is the following:

- All known Areas of Concern (AOCs);
- Descriptions of each identified AOC;
- Summary of all known environmental data for each AOC including the results of the February 2001 groundwater sampling event;
- Summary of human exposure pathway to potentially contaminated media;
- Summary of human receptors which are potentially exposed to contaminated media;
- Preliminary determination of the horizontal extent of contaminated groundwater at each AOC; and
- Summary of environmental "Data Gaps" for each AOC.

1.1 Site Operations

The MacDermid, Inc. facility located at 526 Huntingdon Avenue in Waterbury, Connecticut manufactures specialty chemicals for the metal finishing, plating on plastics and printed circuit industries. For the specialty chemical product copper etchant, MacDermid, Inc. has developed a recycling service for their customers and off-site MacDermid facilities.

1.2 Site Information

As shown on Figure 2, the Huntingdon Avenue facility, which is located approximately 11 acres, is comprised of the following interconnected buildings:

- Gear Street Building (approximately 36,000 sq.ft.);
- East Aurora Street Building (approximately 48,000 sq.ft.); and
- Huntingdon Avenue Building (approximately 98,500 sq.ft.).

The Gear Street Building, which is located in the southwestern portion of the site, was occupied by the Waterbury Steel Ball Company from circa 1922 to 1977. Review of the Sanborn Insurance maps (dated 1922, 1950, 1956, 1962, 1968, and 1977) indicate that the Gear Street Building was expanded as follows:

Sanborn Map	Buildings
1922	The on-site Gear Street building occupied only the Electroless Nickel Area, ≤90 Day Hazardous Waste Storage Area, and Chemical Storage Area (see Figure 2). Occupant was the Waterbury Steel Ball Company.
1950	Building was expanded to the north and northeast to include the large Chemical Storage Area, the Former Solder Stripper Recycling Area, and the Pilot Plant. Occupant was the Waterbury Steel Ball Company, Inc., a division of Federal Bearing Company
1956	Same as the 1950 Sanborn map.
1962	Same as the 1950 Sanborn map.
1968	Building was expanded to the east to include the Ink Manufacturing Area. The footprint of the on-site building is the same as today. The occupant of the building was the Waterbury Steel Ball Company, Inc., a division of Federal Bearing Company.
1977	Building is the same as today. The occupant of the building was the Waterbury Steel Ball Company, Inc., a division of Federal Bearing Company.

The Gear Street Building, which has been occupied by MacDermid since circa 1978, is currently used by MacDermid, Inc. for the manufacturing of inks and electroless nickel plating solutions for the metal finishing and printed circuit board industry, storage of hazardous waste containers for ≤90 days and storage of raw chemicals in containers. The ink manufacturing operation, however, is performed on a limited basis.

The East Aurora Street Building, which is used primarily for product storage and shipping/receiving, was constructed by MacDermid, Inc. in circa 1985. This building, which lies in the center of the site, is connected to the Gear Street and Huntingdon Avenue Buildings.

The Huntingdon Avenue building, which is located in the northeastern portion of the site, was originally occupied by the Carroll Wire Company. MacDermid, Inc. has occupied this building since circa 1927. Review of the historic Sanborn Insurance maps indicate that the Huntingdon Avenue Building was expanded as follows:

Sanborn Map	Buildings
1922	The on-site building occupied only an area of approximately 50 feet wide by 100 feet long, which included the front entrance. The garage located to the south is also shown. The occupant of the building was the Carrol Wire Company.
1950	Building size was the same as the 1922 Sanborn map. The occupant of the building was MacDermid, Inc.
1956	Building was expanded to the east to include the QA/QC laboratories and to the west to include the Pilot Plant Department. The occupant of the building was MacDermid, Inc.
1962	Building size is the same as the 1956 Sanborn map. The occupant of the building was MacDermid, Inc.
1968	Building was expanded to the south to include the Dry Mix Department and to the west to include the Cooper Etchant Processing Area. The occupant of the building was MacDermid, Inc.
1977	The building size is the same as the 1968 Sanborn map. The occupant of the building was MacDermid, Inc.

Other on-site features include the Flammable Material Rack Storage Area located on the northeastern portion of the site, the Soil Disposal Area located on the northern portion of the site (opposite side of Huntingdon Avenue facility), and the Garage located on the eastern portion of the site. Descriptions of the Flammable Material Rack Storage Area and the Soil Disposal Area, which have been identified as AOCs, are provided in Section 2.0. The Garage, which is shown on the 1922 Sanborn map, is used for the storage of only miscellaneous metal parts and equipment (i.e., no hazardous chemicals).

The Huntingdon Avenue Building (see Figure 2) currently houses the following process operations:

- QA/QC laboratory;
- Dry Mix Department;
- Pilot Plant Department;
- Main Mixing Area;
- Copper Etchant Process Area;

- Industrial Batch Wastewater Treatment System;
- Acid Above-Ground Tank Farm;
- Bulk Spent Copper Etchant Storage Area; and
- Bulk Copper Etchant Loading and Unloading Area.

The former industrial wastewater lagoons were located on the western side of the Huntingdon Avenue building.

The property line of MacDermid's Huntingdon Avenue site, which extends north of Huntingdon Avenue, is shown on Figure 2A.

1.3 Site Setting

MacDermid, Inc., which is located in a mixed industrial/residential/commercial area, is bounded as follows:

- North: Huntingdon Avenue; MacDermid owns property to the north of Huntingdon Avenue
- East: Tuttle's Autobody; east of Tuttle Autobody are East Aurora Street, manufacturing businesses, and Naugatuck River.
- South: East Aurora Street; south of East Aurora Street are manufacturing businesses, and Naugatuck River.
- West: Gear Street; west of Gear Street are Huntingdon Place (private residences), manufacturing businesses, and Steel Brook.

The groundwater beneath the Huntingdon Avenue site and vicinity has been assigned a groundwater quality classification of "GB" by the Connecticut Department of Environmental Protection (CT-DEP), which denotes that groundwater may not be suitable for human consumption without treatment due to waste discharges, spills or leaks of chemicals or land use impacts. Steele Brook, located approximately 0.17 mile southwest of the Huntingdon Avenue site, has been assigned a surface water classification of "B" indicating it is known or presumed to meet Water Quality Criteria which support designated uses, which may include recreational use; fish and wildlife habitat; agricultural and industrial supply and other legitimate uses including navigation. The Naugatuck River, located 0.2 mile east of the Huntingdon Avenue site, has been assigned a surface water classification of "C/B", indicating that, due to point or nonpoint sources of pollution, certain Water Quality Criteria or one or more designated uses assigned to Class B waters (e.g. fish and wildlife habitat) are not currently met. The water quality goal is achievement of Class B Criteria and attainment of Class B designated uses.

2.0 AOC DESCRIPTIONS

On May 5, 1993, TRC Environmental Corporation (TRC), a contractor for the U.S. Environmental Protection Agency (EPA), performed a RCRA Facility Assessment (RFA) of MacDermid, Inc.'s Huntingdon Avenue facility. Based on the results of this assessment, TRC identified the nineteen (19) Areas of Concern (AOCs) listed below in the report entitled "Final RCRA Facility Assessment (RFA), MacDermid, Incorporated, Waterbury, Connecticut", and dated September 24, 1993. A copy of the TRC report is provided in Appendix B.

- Soil Disposal Area
- Former Waste Lagoons
- Ink Spill Area
- Underground Storage Tanks (2)
- Transformer vault
- WWTS
- Dry Chemical Silos (4)
- East Aurora Street Warehouse
- Pilot Plant (including QA/QC Labs and Small Packaging Area)
- Main Mixing Area
- Satellite Storage Areas (4)
- Flammable Rack Storage Area
- Chemical Storage Area: Gear St. Building
- Bulk Waste Unloading and Storage Area
- Copper Etchant Processing Area
- Ink Manufacturing Area
- Former Solder Stripper Reclaim Area
- Electroless-Nickel Area
- Acid Tank Farm

In addition to the nineteen (19) AOCs listed above, MacDermid, Inc. has identified the following four (4) additional AOCs:

- 1994 Copper Etchant Spill;
- 2000 Gear Street Industrial Wastewater Sump Release;
- Former 6,000 gallon #2 Fuel Oil UST (East Aurora Street Building); and
- 4,000 gallon #2 Fuel Oil UST (Gear Street Building).

In an effort to facilitate the process of determining when the goal of stabilization has been achieved for the two environmental indicators (i.e. Human Exposure and Groundwater Control), MacDermid has elected at this time to combine or cluster some of the AOCs listed above into one AOC. The reasons for clustering or not clustering the AOCs are presented in Table 1. The AOCs listed in Table 1 have also been assigned letter designations (e.g. AOC-A), or letter and number designations (e.g., AOC-E1) to minimize any confusion associated with TRC's 1993 AOC numbering system (see Table 1).

Presented in subsections 2.1 through 2.12 are descriptions of each AOC.

In addition to clustering the AOCs, the groundwater monitoring wells, which were installed by a different organization, have been renumbered MW-101 through MW-113 for uniformity. Listed below are the monitoring wells new and former designations:

New Designation

Former Designation

MW-101	MAC-6
MW-102	MAC-5
MW-103	GZ-2
MW-104	MAC-7
MW-105	GZ-7
MW-106	MAC-4
MW-107	MAC-3
MW-108	GZ-9
MW-109	GZ-8
MW-110	MAC-1
MW-111	GZ-6
MW-112	GZ-3
MW-113	GZ-5

2.1 AOC Letter: AOC-A

AOC Name: Soil Disposal Area

AOC Description: AOC-A is the area used by MacDermid, Inc. in 1978/1979, which was reportedly used for the disposal of approximately 1,000 cubic yards of metal hydroxide sludge and potentially contaminated soil excavated from MacDermid's waste lagoons (AOC-E1). This disposal area, which measures approximately 50 feet wide by 95 feet long (TRC, 1993), is located approximately 400 feet north of the Huntingdon Avenue facility (opposite side of Huntingdon Avenue, see Figure 2). This disposal area was covered with an asphalt cap in 1986. Prior to 1978/1979, no industrial activities are known to have occurred at AOC-A. The asphalt cap was observed on April 4, 2001 to contain several cracks and was littered with broken glass bottles and plastic cups. The remnants of a small campfire were also observed on the north-western portion of the asphalt cap.

The material removed from AOC-E1 was reportedly (IPC, 1986) mixed with sand and gravel to increase its load bearing characteristics. Following its placement in AOC-A in 1978/1979, it was covered with clean fill. The existing layer of clean fill (depth varies) was covered with nine (9) inches of processed aggregate and three (3) inches of bituminous concrete (i.e. asphalt) in 1986 (IPC, 1986).

MacDermid personnel reported to GZA GeoEnvironmental, Inc. of Vernon, Connecticut (GZA, 1995) that the TRC report (TRC, 1993) was incorrect. The metal hydroxide sludge from AOC-E1 was not disposed of in AOC-A, but was disposed of off-site. AOC-A was reportedly used only to receive potentially contaminated soil from AOC-E1.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC. This area, however, was used to receive at least potentially contaminated soil from AOC-E1 (see Potential Releases).

Potential Releases: Presented in Table 2 are the EP toxicity sampling results for metal hydroxide sludge composites prepared by MacDermid, Inc. in 1981 and the material excavated from AOC-E1 in 1986 by MacDermid personnel. As indicated in Table 2, the material excavated from AOC-E1 (samples numbers 1 and 2) in 1986 exhibited only low EP toxicity leachate concentrations for silver. The metal hydroxide drum composites prepared in 1981 exhibited low EP toxicity leachate concentrations for cadmium and chromium.

In April 1986, the Industrial Pollution Control (IPC) Corporation of Westport, Connecticut, installed two (2) groundwater monitoring wells in the area of AOC-A. Monitoring well MW-101- (formerly known as MAC-6)-(see Figure 2) was installed at the apparent upgradient edge of AOC-A. Monitoring well MW-102 (formerly known as MAC-5) was installed at the apparent downgradient edge of AOC-A (see Figure 2). groundwater.

2.1 AOC Letter: AOC-A (continued)

Potential Releases

Monitoring well MW-101 is a bedrock well. As indicated in the boring log (see Appendix C), bedrock was encountered at a depth of 3.5 feet below grade. This two (2) inch diameter PVC well was set at a depth of 36 feet below grade with 10 feet of screen. Monitoring well MW-102, which is located approximately 230 feet south of MW-101, is a 2-inch diameter PVC overburden monitoring well. At this location, refusal was encountered at a depth of 31.75 feet below grade. Monitoring well MW-102 was set at a depth of 31.75 feet with 10 feet of screen. Monitoring wells MW-101 and MW-102 are equipped with two (2) foot high standpipes and locking caps. Groundwater level at MW-102 is approximately 25 feet below grade.

The borings logs for MW-101 and MW-102 (see Appendix C) indicated no visual or olfactory signs of potentially contaminated soil.

Monitoring wells MW-101 and MW-102, which are known to have been sampled on three separate events, have exhibited low concentrations of arsenic, barium, copper, silver, zinc, fluoride, cyanide (total), and acetone. Groundwater data is discussed under "Human Exposure" and "Groundwater Control" descriptions.

During EPA's April 4, 2001 site visit of AOC-1, two (2) rusted 55-gallon drums and a section of a steel stack were observed an estimated 300 feet northwest of AOC-1. The steel drums, which appeared to be located on the northern edge of MacDermid's property, are severely rusted and structurally unsound (i.e., cannot contain free liquids). The source of these materials, which are located more than 750 feet from MacDermid's Huntingdon Avenue building, is not known.

Human Exposure:

The known investigations performed to date in the area of AOC-A are as follows:

- Analysis of excavated material in 1986;
- Installation of monitoring wells MW-101 and MW-102 in April 1986; and
- Sample and analysis of groundwater monitoring wells MW-101 and MW-102 in April 1986, March 1995, and February 2001.

The EP toxicity sampling results for materials potentially stored in AOC-A are presented in Table 2. Included in Table 2 are the Connecticut Remedial Standard Regulation (CT-RSR) standards for Direct Exposure Criteria (DEC) and Pollutant Mobility Criteria (PMC). Although the PMC standards are for metals analyzed by the toxicity characteristic leaching procedure (TCLP) or the synthetic precipitation leaching procedure (SPLP), the PMC standards have been provided for comparison purposes only. As indicated in Table 2, no PMC standards were exceeded. Descriptions of the DEC and PMC standards are provided in Appendix D.

A summary of the known groundwater sampling results for MW-101 and MW-102 is provided in Table 3. Included in Table 3 are the following applicable CT-RSR standards:

- Surface Water Protection Criteria (SWPC); and
- Industrial/Commercial Volatilization Criteria (I/C VC).

2.1 AOC Letter: AOC-A (continued)

Human Exposure (continued)

Because the MacDermid facility is located in a GB groundwater classification area and no groundwater drinking supply sources are known to be located in the immediate area, the Groundwater Protection Criteria (GWPC) does not apply (see Section 22a-133k-3(d) of the Regulations of the State Agencies [RCSA]).

Descriptions of the SWPC and VC standards are provided in Appendix D. Provided in Appendices E and F are the 1995 and 2001 groundwater laboratory reports, respectively.

Based on the data presented in Tables 2 and 3, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-A are as follows:

Contaminated Media Table				
Pathway	Yes	No	unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply. Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	This AOC is reported to be covered with the following materials: <ul style="list-style-type: none"> • Clean fill (varying depths); • Processed aggregate (9 inches); and • Bituminous concrete (3 inches). The bituminous concrete was observed on April 4, 2001 to contain several cracks.
Surface Water			X	Monitoring well MW-101 slightly exceeded the SWPC standard for arsenic in February 2001 (see Table 3). As indicated in Table 3, monitoring well MW-102 has exhibited concentrations of copper and total cyanide above the SWPC standards in March 1995. No SWPC standard exceedances were detected in MW-102 in February 2001.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	The 1981 and 1986 sampling results presented in Table 2 indicated EP toxicity concentrations of cadmium, chromium, and silver below the GB-PMC standards. The GB-PMC standards for metals, however, are based on SPLP, TCLP or mass analysis (i.e. not EP toxicity). In addition, the available testing results are limited to the 8 RCRA metals (i.e. no data for non-RCRA metals such as copper, nickel and zinc, or volatile organic compounds (VOCs).
Air (outdoors)		X		Not applicable.

2.1 AOC Letter: AOC-A (continued)

Human Exposure (continued)

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Residents Trespassers Workers Construction	This AOC-A is located in a non-secure area, north of the Huntingdon Avenue facility. It is unknown at this time if all of the potentially contaminated material is covered with a cover of at least two (2) feet and/or an impermeable cover. The asphalt cap was observed on April 4, 2001 to be littered with broken glass bottles and plastic caps. The remnants of a small campfire were also observed on the north-western portion of the asphalt cap.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 2,000 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Construction	If excavation operations are performed in the area of AOC-A, construction workers could be exposed to potentially contaminated soil.

Groundwater Control

A summary of the groundwater monitoring data for AOC-A is presented in Table 3. As indicated in Table 3, the CT RSR's SWPC standards for copper and cyanide (total) were exceeded in monitoring well MW-102 in March 1995. No SWPC exceedances were detected in monitoring well MW-102 in February 2001. In February 2001, monitoring well MW-101 slightly exceeded the SWPC standard for arsenic only.

Based on the groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River (see Figure 3). The depth to groundwater in monitoring well MW-102 is approximately 25 feet below grade. The depth to bedrock in the area of AOC-A ranges from 3.5 to 32 feet (see Appendix C).

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

2.1 AOC Letter: AOC-A (continued)

The horizontal and vertical dimensions of the contaminated groundwater in the area of AOC-A have not been defined at this time. The nearest on-site monitoring well MW-103 (formerly known as GZ-2) does not appear to be located downgradient of AOC-A.

Data Gaps

- Condition of the asphalt cap.
- Total depth of cover (clean fill, processed aggregate and asphalt).
- Type of material stored in the AOC-A (sludge and/or contaminated soil).
- Lateral extent of the cover (i.e. covers the material stored in AOC-A)
- Mass and SPLP metals concentrations in stored material, if any.
- Concentration of VOCs in stored materials.
- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions.
- Verify if the rusted drums and steel stack section are located on MacDermid's property and, if possible, determine the former contents of the rusted drums (labels).
- Evaluate the need for securing the area of AOC-A from potential trespassers.
- Concentration of tin in the groundwater.
- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.2 AOC Letter: AOC-B

AOC Name: *Underground Storage Tank*

AOC Description: This AOC is comprised of one (1) underground storage tank (UST) located on the northern side of the Huntington Avenue building (see Figure 2). The 10,000-gallon UST, which was reported by TRC (see Appendix B) to be located on the northeastern side of Huntington Avenue building, did not exist according to MacDermid's UST Facility Notification Form (see Appendix H).

The additional USTs known to have been located or still in use at this facility, have been identified as AOC-F and AOC-J (see Sections 2.6 and 2.10).

The UST located at this AOC was originally installed in 1959 and was replaced in September 1998. This steel tank is cathodically protected and the cathodic protection system is tested on an annual basis to ensure the required negative voltage between the UST and the copper sulfate electrode is being maintained. This UST is used to store #2 fuel oil.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: Releases from the tank in this AOC may potentially occur if the structural integrity of the UST has been impacted or during filling operations. As shown on Figure 2, monitoring well MW-103 appears to be located downgradient of AOC-B. No petroleum hydrocarbon sheen or organic compounds typically contained in petroleum products were observed in MW-103 during the February 2001 sampling event. Soil and groundwater data for MW-103 are presented in Tables 4 and 5, respectively, and discussed under "Human Exposure" and "Groundwater Control" descriptions.

Boring logs for monitoring well MW-103 (see Appendix C) indicated no visual or olfactory signs of potentially contaminated soil.

Human Exposure:

The known investigations performed to date in the area of AOC-B are as follows:

- GZA's Soil and Groundwater Investigations (1995); and
- HRP's Groundwater Sampling Event (2001).

On January 12, 1995 (see Appendix C), GZA installed monitoring well MW-103 (formerly known as GZ-2). Upon installation of this well, the soil sample collected from the 10-12 foot horizon was submitted for analysis of TCLP extractable metals² and VOCs by EPA Method 8260.

²Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

2.2 AOC Letter: AOC-B (continued)

A summary of the 1995 GZA soil sampling results is provided in Table 4. Included in Table 4 are the applicable CT RSR's DEC and PMC standards. As indicated in Table 4, no PMC standards were exceeded. Descriptions of the DEC and PMC standards are provided in Appendix D. Provided in Appendix I are the laboratory reports for the GZA soil samples.

In March 1995 and February 2001, groundwater samples were collected from MW-103 and analyzed for dissolved metals², total and amenable cyanide, fluoride and VOCs by EPA Method 8260.

A summary of the groundwater results for MW-103 are presented in Table 5. Included in Table 5 are the applicable CT-RSR's SWPC and I/C VC standards (see Appendix D). No SWPC or I/C VC standards were exceeded in MW-103 in February 2001 (see Table 5). Copies of the 1995 and 2001 groundwater laboratory reports are provided in Appendices E and F, respectively.

*Based on the data presented in Tables 4 and 5, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-B are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Groundwater Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	The 10,000-gallon heating oil UST appears to be located beneath a concrete cap. The current conditions of this concrete cap (covered with snow) is not known at this time. The area immediately surrounding the concrete cap is grass. No subsurface investigations have been performed in the immediate area of this UST.
Surface Water			X	No SWPC or VC standards were exceeded in MW-103 during February 2001 (see Table 5). However, since groundwater monitoring is currently limited to one (1) downgradient overburden well, the impact to the underlying groundwater (if any) is not known at this time.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	No subsurface investigations of greater than 2 feet have been performed in the area immediately surrounding the UST. Monitoring well MW-103 is located approximately 130 feet south of the 10,000-gallon UST. Therefore, the soil sample collected and analyzed by GZA from the 10'-12' soil horizon of MW-103 in 1995, is not representative of this UST's subsurface soils.
Air (outdoors)		X		This AOC is used to store only #2 fuel oil, therefore this pathway is not applicable.

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

2.2 AOC Letter: AOC-B (continued)

Human Exposure (continued)

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Residents Trespassers Workers Construction	AOC-B is located in a non-secure area, north of the Huntingdon Avenue building. The area directly above the UST is covered with a concrete cap. If soil excavations are performed in the area of this AOC, the listed human receptors could be exposed to potentially contaminated soil. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-B, on-site workers and construction workers could be exposed to potentially contaminated soil (if it exists).

Groundwater Control)

Monitoring well MW-103 appears to be located hydraulically downgradient of AOC-B. As indicated in Table 5, no metals, cyanide or VOC CT-RSR exceedances were detected in this shallow overburden monitoring well in February 2001.

Since no monitoring well is located upgradient of this AOC and groundwater sampling results are limited to one (1) shallow overburden monitoring well, the horizontal and vertical dimensions of potentially contaminated groundwater in the area of AOC-B have not been defined at this time.

Data Gaps:

- Condition of the concrete cap.
- Condition of the soil surrounding the UST.
- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions.
- Concentration of tin in the groundwater.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.3 AOC Letter: AOC-C

AOC Name: *Dry Chemical Silos*

AOC Description: This AOC, which is located on the northeastern side of the Huntingdon Avenue building, consists of four (4) upright 10,000-gallon steel silos. These silos, which are totally enclosed (i.e., top, sides, and bottom), were formerly used for the storage of dry sodium carbonate (two types, light and dense), sodium metasilicate, and sodium hydroxide. The silos, which are currently empty, are located on a raised concrete pad.

Known Releases: No documented releases to the surrounding environment are known to have occurred from this AOC.

Potential Releases: Releases to the environment may have potentially occurred during the loading and unloading of the silos.

Human Exposure:

No known investigations have been performed to date in the area of AOC-C. Listed below are the environmental media (i.e., groundwater, soil, etc.) reasonably suspected to be "contaminated" above appropriate protective risk-based standards in the area of AOC-C.

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	The silos are located on a raised concrete pad. The area surrounding this AOC is primarily covered with an asphalt cap and is sloped towards East Aurora Street. However, no subsurface investigations have been performed in this area.
Surface Water			X	No groundwater monitoring wells are located downgradient of this AOC.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	The area surrounding AOC-C is primarily covered with an asphalt cap and is sloped towards East aurora Street. No subsurface investigations have been performed in this area.
Air (outdoors)		X		The dry chemical silos are empty, therefore, this pathway is not applicable. Copies of the Materials Safety Data Sheets (MSDSs) for the chemicals formerly stored in the silos are provided in Appendix J. As indicated in the attached MSDSs, the primary health hazards posed by these chemicals are reported to be irritation to the skin, eyes, and respiratory tract.

2.3 AOC Letter: AOC-C (continued)

Human Exposure (continued)

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. suspected to be above appropriate risk-based standards).

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Residents Trespassers Workers Construction	AOC-C is not located in a secure area. However, the area surrounding the silos is covered primarily with an asphalt cap. Therefore, exposure to potentially contaminated soil would only occur if excavation activities are performed in this area. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-C, on-site workers and construction workers could be exposed to potentially contaminated soil.

Groundwater Control:

As shown on Figure 3, no monitoring well appears to be located hydraulically downgradient of AOC-C. Therefore, the horizontal and vertical dimensions of potentially contaminated groundwater in the AOC-C (if any) have not been defined at this time. Monitoring well MW-103, which appears to be located hydraulically upgradient of AOC-C, exhibited no metal, cyanide, or VOC concentrations above applicable CT-RSR standards in February 2001 (see Table 5).

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions.
- Concentration of tin in the ground water.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.4 AOC Letter: AOC-D

AOC Name: **AOC-D1 – Pilot Plant (including QA/QC labs and small packaging area)**

AOC Description: AOC-D1 is located in the northeastern end of the Huntingdon Avenue building. This AOC consists of the Pilot Plant, the QA/QC labs, the small packaging area, and a satellite hazardous waste container storage area. Within the Pilot Plant, small batches of sample products are produced for MacDermid's customers. The above-ground process tanks located within the Pilot plant range from 5 gallons to 750 gallons in size. The types of chemicals which have been managed within this AOC include: copper etchant, solder stripper, inks, electroless nickel plating solution, dry batch chemicals and components of these materials (TRC, 1993).

Located within the satellite storage area is a single 55-gallon drum which is used to temporarily store the hazardous wastes generated within this AOC. When the 55-gallon drum is full, it is transferred to MacDermid's ≤ 90 day hazardous waste container storage area located within the Gear Street building.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To prevent releases to the environment, the Pilot Room is constructed with a concrete floor which is sloped towards a collection sump. Material within the collection sump can either be containerized or discharged to MacDermid's industrial wastewater treatment system (WWTS). Spills or releases within the QA/QC lab and the small packaging area would be contained by the area's concrete floor and building walls.

As indicated on Figure 3, monitoring wells MW-104 (formerly known as MAC-7) and MW-105 (formerly known as GZ-7) appear to be located downgradient of AOC-D1. Soil and groundwater data for monitoring wells MW-104 and MW-105 are presented in Tables 6 and 7, respectively, and discussed under "Human Exposure" and "Groundwater Control" descriptions. As indicated in Tables 6 and 7, no metal, cyanide, or VOC CT-RSR exceedances were detected in the 1995 soil sample or in the February 2001 groundwater monitoring results.

Boring log for monitoring well MW-105 (see Appendix C) indicated no visual signs of potentially contaminated soil. The low field PID results listed in MW-105's boring log (≤ 0.9 ppm relative to benzene in air) indicates no significant source of VOC contaminated overburden soils. No boring Log was available for review for monitoring well MW-104.

2.4 AOC Letter: AOC-D (continued)

AOC Name: AOC-D2 – Main Mixing Area

AOC Description: The main mixing area, located in the center of the Huntingdon Avenue building, was formerly used to blend copper plating solution. This AOC is currently used to re-package dry chemicals into small units for off-site sale.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To prevent releases to the environment, this AOC is equipped with a dust collector, epoxy-coated concrete floor and floor trenches. The floor trenches are connected to MacDermid's WWTS (i.e. AOC-E2).

As indicated on Figure 3, monitoring wells MW-104 and MW-105 appear to be located downgradient of AOC-D2. Soil and groundwater data for monitoring wells MW-104 and MW-105 are presented in Tables 6 and 7, respectively, and discussed under "Human Exposure" and Groundwater Control" descriptions. As indicated in Tables 6 and 7, no metal, cyanide, or VOC CT-RSR exceedances were detected in the 1995 soil sample or in the February 2001 groundwater monitoring results.

Human Exposure:

The known investigations performed to date in the area of AOC-D1 and AOC-D2 are as follows:

- IPC Corporation Groundwater Investigation (estimated to be 1988);
- GZA's Soil and Groundwater Investigations (1995); and
- HRP's Groundwater Sampling Event (2001).

Monitoring well MW-104 was installed by the IPC Corporation. No boring log or well completion report nor IPC groundwater monitoring data could be located for this monitoring well (MW-104).

On February 15, 1995, GZA installed monitoring well MW-105 (see Appendix C). During installation of this monitoring well the soil sample collected from the 15-17 foot horizon was submitted for analysis of TCLP extractable metals² and VOCs by EPA Method 8260.

A summary of the 1995 GZA soil sampling results is provided in Table 6. Included in Table 6 are the applicable CT-RSR's DEC and PMC standards (see Appendix D). No CT-RSR PMC standard was exceeded in monitoring well MW-105's 1995 soil sample. Provided in Appendix I are the laboratory reports for the GZA 1995 soil samples.

In March 1995, groundwater samples were collected by GZA from MW-104 and MW-105 and analyzed for dissolved metals², total and amenable cyanide, fluoride and VOCs by EPA method 8260. In February 2001, HRP collected groundwater samples from MW-105 only for analysis of the March 1995 parameters. No CT-RSR SWPC or I/C VC standards were exceeded in monitoring well MW-105 in February 2001.

Monitoring well MW-104 could not be sampled in February 2001 due to obstruction encountered at a depth of approximately 25 feet. This obstruction is suspected to be siltation.

²Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

2.4 AOC Letter: AOC-D (continued)

Human Exposure:

A summary of the groundwater results for MW-104 and MW-105 are presented in Table 7. Included in Table 7 are the applicable CT-RSR's SWPC and I/C VC standards (see Appendix D). No CT-RSR SWPC or I/C VC standards were exceeded in MW-105 during the February 2001 groundwater sampling event. Copies of the 1995 and 2001 groundwater laboratory reports are provided in Appendices E and F, respectively.

Based on the data presented in Tables 6 and 7, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-D are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		The concentrations of VOCs detected in the current groundwater monitoring system (see Tables 2-17) are significantly below the CT-RSR's SWPC and I/C VC standards.
Surface Soil (<2 ft)			X	The subsurface soil is covered with either concrete or epoxy-coated concrete floor. However, no subsurface investigations have been performed in this AOC.
Surface Water			X	No SWPC or I/C VC standards were exceeded in MW-105 during the February 2001 groundwater sampling event (see Table 7). However, since groundwater monitoring is currently limited to one (1) downgradient overburden well, the extent of the impact to the underlying groundwater (if any) is not known at this time.
Sediment			X	Impact the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	The subsurface soil is covered with either concrete or epoxy-coated concrete floor. However, no subsurface investigations have been performed in this AOC.
Air (outdoors)		X		This AOC is located inside the Huntingdon Avenue building, therefore this pathway is not applicable.

Summarized below are the human receptors, which might be reasonably expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

2.4 AOC Letter: AOC-D (continued)

Human Exposure:

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	AOC-D is located in a secure area (inside the Huntingdon Avenue building). If excavation operations are performed in this area (i.e. below concrete floor), on-site workers and construction workers could be exposed to potentially contaminated soil. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-D, on-site workers and construction workers could be exposed to potentially contaminated soil.

Groundwater Control:

Based on groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River. The overburden groundwater monitoring wells MW-104 and MW-105 appear to be located hydraulically downgradient of AOC-D. Due to the obstruction detected in MW-104, only MW-105 was sampled and analyzed in February 2001.

As indicated in Table 7, no CT-RSR's SWPC or I/C VC standards were exceeded in monitoring well MW-105 in February 2001.

The horizontal and vertical dimensions of potentially contaminated groundwater in the area of AOC-D have not been determined at this time with the existing groundwater monitoring system.

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions in AOC-D.
- Concentration of tin in the groundwater.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polycyclic aromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.5 AOC Letter: AOC-E

AOC Name: **AOC-E1 - Former Waste Lagoons**

AOC Description: AOC-E1 is comprised of two (2) lagoons, which were used from circa 1930 to 1978, as the discharge areas for organic and inorganic process waste (TRC, 1993). As shown on Figure 2, the two lagoons were located on the western side of the Huntingdon Avenue building. Review of the 1975 aerial photograph, which was obtained from the Connecticut Department of Natural Resources, indicates that one of the former lagoons was located beneath what is currently the Bulk Waste Loading and Storage Area and the Acid Tank Farm. The approximate dimensions of this lagoon were 190 feet by 60 feet. Review of the 1980 aerial photograph, indicates that the second lagoon was located west of the 1975 lagoon area. The approximate dimensions of the 1980 lagoon were 120 feet by 40 feet. The lagoons are not visible in the 1986, 1990, or 1994 aerial photographs. Copies of the 1965, 1970, 1975, 1980, 1986, and 1990 aerial photographs are included in Appendix O. (Note: A copy of the 1994 aerial photograph was not available for copying in May 2001.)

In 1979, the sludges from both lagoons were reportedly excavated and disposed of off-site (GZA, 1995). The soils underlying the lagoons were excavated and placed in AOC-A.

Within these earthen lagoons (i.e. no liners), the solids settled to the bottom and the liquid was decanted and discharged to the municipal sewer systems.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC. Since these unlined lagoons were used to receive industrial wastewaters, it is anticipated that there have been releases to the site's soil and groundwater (see Potential Releases).

Potential Releases: In January/February 1995, GZA installed a total of five (5) borings within the estimated footprints of the two (2) former waste lagoons. The locations of these borings B-2, B-3, B-4, MW-108, and MW-109 (formerly known as GZ-11, GZ-10, GZ-4, GZ-9, and GZ-8, respectively) are shown on Figure 2. MW-108 (formerly GZ-9) and MW-109 (formerly GZ-8) are overburden groundwater monitoring wells. Copies of the boring logs are provided in Appendix C.

Based on the results of GZA's 1995 soil/groundwater investigation and HRP's February 2001 groundwater sampling event, it appears that a release may have occurred from AOC-E1. As indicated in Table 8, soil samples from B-2 and MW-108, exhibited metal concentrations (chromium, lead and/or nickel) above CT-RSR's PMC standards. The groundwater (see Table 9) also exhibited concentrations of metals (e.g., copper, nickel, and zinc) and cyanide above the CT-RSR's SWPC standards.

Boring logs for borings B-3 and B-4 indicated no visual or olfactory signs of potentially contaminated soil. Boring log for monitoring well MW-8 indicted the presence of some black staining at the depth of 10 to 12 feet. The spoils from monitoring wells MW-8 and MW-9 also listed as having a sweet odor. The field PID readings for boring B-2, and monitoring wells MW-8 and MW-9 were ≤ 0.9 ppm (relative to

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benzene in air), which indicates no significant source of VOC contaminated overburden soils at these boring/monitoring well locations.

A summary of all test results performed in this area are presented under the "Human Exposure" and "Groundwater Control" descriptions.

2.5 AOC Letter: AOC-E (continued)

AOC Name: **AOC-E2 - Wastewater Treatment System**

AOC Description: The Wastewater Treatment System (WWTS), as shown on Figure 2, is located on the southwestern side of the Huntingdon Avenue building. The WWTS presently consists of eight (8) 15,000-gallon batch treatment tanks, four (4) 15,000-gallon collection tanks, two (2) 3,000-gallon metal hydroxide (MOH) slurry tanks, a 4,000-gallon recirculation tank, an ultrafiltration unit, a 15-cubic foot filter press, and a 26-cubic yard MOH sludge roll-off container. The WWTS is used to treat wash waters and spills generated primarily from copper etchant process area, main mixing area, pilot plant department, dry mix department, bulk waste loading and storage area and ink manufacturing area. The original WWTS, which did not contain the MOH slurry tanks, filter press, the MOH roll-off and ultrafiltration system, was installed in 1978. The MOH filter press and roll-off was added in 1980 (TRC, 1993). The ultrafiltration system was installed in 1992.

The wash waters/spills are treated for the removal of the following pollutants: ammonia, chromium (hexavalent), chromium (total), copper, cyanide (amenable), cyanide (total), fluoride, iron, nickel, tin, zinc, and pH. The treated effluent is discharged to the city of Waterbury's sewage treatment facility pursuant to a State wastewater discharge permit.

The WWTS tanks are constructed of either steel, concrete, or fiber-reinforced plastic (FRP). The tanks are located on a concrete floor and are surrounded by a concrete berm.

The batch treatment tanks are also connected to a wet scrubber system, which removes ammonia vapors.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To prevent releases to the environment, the WWTS is surrounded by a concrete berm and the emissions from the treatment tanks are treated by a wet scrubber.

To minimize the possibility of any releases from AOC-E2 and other AOCs in the area to the stormwater collection system, MacDermid retrofitted catch basins CB-1, CB-2 and CB-3 with watertight manhole covers in 1998. The locations of these catch basins are shown on Figure 2.

As discussed in AOC-E1, groundwater in this area has been impacted (see "Human Exposure" and "Groundwater Control" descriptions). Groundwater (see Table 9) exhibited metal concentrations (e.g., copper nickel, and zinc) and cyanide above the CT-RSR's SWPC standards.

2.5 AOC Letter: AOC-E (continued)

AOC Name: *AOC-E3 - Bulk Spent Copper Etchant UnLoading and Storage Area*

AOC Description: The Bulk Spent Copper Etchant UnLoading and Storage Area, which is located at the northwestern end of the Huntingdon Avenue building (see Figure 2), is used to manage spent copper etchant. The enclosed 45 foot by 65 foot Bulk Spent Copper Etchant Loading Area is equipped with a concrete floor, which is sloped towards floor trenches. The floor trenches are connected to the WWTS (i.e. AOC-E2).

The Bulk Storage Area for spent copper etchant is located immediately east of the Bulk Spent Copper Etchant Loading Area. Located within the Bulk Storage Area are three (3) 7,500-gallon aboveground FRP storage tanks and one (1) 3,500-gallon aboveground FRP storage tank. The 7,500-gallon storage tanks are used to store spent copper etchant received from MacDermid's customers. The 3,500-gallon tank is currently used to store the process chemical sodium hydroxide. The 3,500-gallon storage tank would be used to store spent copper etchant only if additional bulk storage capacity was needed (i.e. 22,500-gallon capacity is exceeded). The Bulk Storage Area, which measures approximately 55 feet by 17.5 feet is equipped with an epoxy coated concrete floor, 2 feet 7 inches high epoxy coated block-wall (south side), epoxy coated building walls (north, east, and west sides), and two (2) collection sumps. Any material collected within the collection sump (located in the north-eastern corner of the storage area) is pumped to the main collection sump (located in the middle of the storage area). From the main collection sump, the collected material is pumped to the WWTS (i.e. AOC-E2).

The primary hazardous constituents associated with the spent copper etchant are: ammonia, arsenic, chloride, copper, chromium, lead, nickel, tin, and zinc

The start-up date for this AOC is estimated to be 1970.

Known Releases: A CT DEP inspector noticed on February 10, 1990, that water from a drum washing operation outside the loading area was being allowed to flow into the on-site catch basins. The discharge point for the catch basins is Steele Brook (TRC, 1993). The sediment located directly beneath the catch basins outfall (i.e. into Steele Brook) was excavated in November 1994 in response to a spent copper etchant spill (see AOC-E6 description).

Potential Releases: Spills or releases within AOC-E3 will be directed to the WWTS (i.e. AOC-E2) by means of sloped concrete floor, concrete berms, building walls, floor trenches, and collection sumps.

As discussed in AOC-E1, groundwater in this area has been impacted (see "Human Exposure" and "Groundwater Control" descriptions). Groundwater (see Table 9) exhibited metal concentrations (e.g., copper nickel, and zinc) and cyanide above the CT-RSR's SWPC standards.

2.5 AOC Letter: AOC-E (continued)

AOC Name: **AOC-E4 – Spent Copper Etchant Recycling Area**

AOC Description: This AOC, which is located in the western portion of the Huntingdon Avenue building (see Figure 2), houses the spent copper etchant processing area. This recycling operation currently contains two (2) above-ground stainless steel reactors, six (6) aboveground ammonia scrub tanks, three (3) aboveground product storage tanks, and various aboveground process chemical tanks. All tanks within this area are located on an epoxy-coated concrete floor, which is sloped to a floor trench system. The floor trench system is connected to the WWTS (i.e. AOC-E2).

The primary hazardous constituents managed within this processing area are: ammonia, arsenic, chloride, copper, chromium, lead, nickel, tin, and zinc.

The start-up date for this AOC is estimated to be 1970.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: Spills or releases within AOC-E4 would be directed to the WWTS (i.e. AOC-E2) by means of sloped concrete floors and a floor trench system.

The IPC Corporation (IPC) installed monitoring wells MW-106 (formerly known as MAC-4) and MW-107 (formerly known as MAC-3) (see Figure 2) within the area of the copper etchant processing area (date is not known). Based on GZA's 1995 groundwater sampling results, the groundwater in this area has been impacted by metals and cyanide.

Summary of all test results performed in this area are presented under the "Human Exposure" and "Groundwater Control" descriptions.

2.5 AOC Letter: AOC-E (continued)

AOC Name: *AOC-E5 - Acid Tank Farm*

AOC Description: The outside Acid Tank Farm is located on the southwestern side of the Huntingdon Avenue building (see Figure 2). This area is currently used to store bulk quantities of the raw process chemicals: hydrochloric acid, nitric acid, hydrogen peroxide, and sulfuric acid. A maximum of 30,000 gallons of process chemicals can be managed within this area at any one time. The storage tanks are located on an epoxy-coated concrete base and surrounded by a 2-foot high epoxy-coated concrete berm. Within this storage area are two collection sumps, which are connected to the WWTS (i.e. AOC-E2).

The start-up date of this AOC, which is currently in use, is not known.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: Spills or releases within AOC-E5 would be directed to the WWTS (i.e. AOC-E5) by means of the asphalt base, concrete berm, and two (2) collection sumps.

To minimize the possibility of any releases from AOC-E5 and other AOCs in the area to the stormwater collection system, MacDermid retrofitted catch basins CB-1, CB-2, and CB-3 with watertight manhole covers in 1998. The locations of these catch basins are shown on Figure 2.

As discussed in AOC-E1, groundwater in this area has been impacted (see "Human Exposure" and "Groundwater Control" descriptions). Groundwater (see Table 9) exhibited metal concentrations (e.g., copper nickel, and zinc) and cyanide above the CT-RSR's SWPC standards.

2.5 AOC Letter: AOC-E (continued)

AOC Name: AOC-E6 - 1994 Spent Copper Etchant Spill

AOC Description: In November 1994, approximately 1,500-gallons of spent copper etchant was accidentally released to the Steele Brook through the stormwater collection system. As described more fully below, MacDermid believes this release was caused by the vacuum generated from the piping system of a non-contact cooling water discharge.

On November 5, 1994, MacDermid temporarily stored copper etchant in a 4,000-gallon scrub tank which was previously equipped with a non-contact cooling water coil. Although the coil was removed, the piping to and out of the coil remained in-place (inside the storage tank). The inlet pipe was equipped with a valve, which was placed in the closed position. The outlet pipe was equipped with a check-valve, which prevented water from entering the tank but allowed water to exit the tank (correct position with cooling coil in-place).

At the time of the accident, the non-contact cooling water pipe was located directly above the 4,000-gallon storage tank. The flow of non-contact cooling water within the above pipeline generated a sufficient vacuum to pull the spent copper etchant out of the scrub tank through the cooling coil's outlet pipe. This mixture of non-contact cooling water and spent copper etchant was discharged to catch basin CB-2 or CB-3. The discharge of non-contact cooling water was authorized by a CT-DEP permit. The discharge of non-contact cooling water was eliminated by MacDermid in the spring of 1997.

Upon discovery of this release, MacDermid removed the copper etchant from the 4,000-gallon storage tank and immediately contacted the CT-DEP. The CT-DEP supervised the initial removal activities which included removing more than 30,000 gallons of water and copper etchant from Steele Brook. Following the removal activity, MacDermid hired HRP to sample the sediment within Steele Brook. The results of HRP's sampling activity was submitted to the CT-DEP on December 24, 1994 (see Appendix K).

As indicated in Appendix K, a total of fifteen (15) sediment samples were collected and analyzed for copper, lead, nickel, and zinc by mass analysis. The metal concentrations, in general, decreased as the downgradient sampling distance from the outfall of the stormwater drainage system increased. The two (2) sediment samples collected upgradient of stormwater drainage system's outfall (2 and 6) also exhibited relatively high concentrations of the metals copper, lead, nickel, and zinc. The Steele Brook and the stormwater drainage system, which received MacDermid's 1994 spent copper etchant spill, have been used for years as the discharge location by other manufacturing facilities for industrial wastewaters.

Although the CT-RSR currently contains no standards for sediment, all the 1994 sediment samples exhibited concentrations below the CT-RSR's Residential DEC standards.

Known Releases: A description of this November 1994 spill of spent copper etchant to Steele Brook is provided under "AOC Description" immediately above.

2.5 AOC Letter: AOC-E (continued)

AOC Name: AOC-E6 - 1994 Spent Copper Etchant Spill (continued)

To eliminate the possibility of any future release of spent copper etchant from a non-contact cooling water discharge, MacDermid has implemented the following operational changes:

- Spent copper etchant is only stored in designated units (i.e., spent bulk copper etchant storage tanks, AOC-E3);
- Eliminated the non-contact cooling water discharge. A closed-loop non-contact cooling water recycling system has been installed; and
- Cut and capped the former non-contact cooling water discharge pipelines.

Potential Releases:

To minimize the possibility of any releases from other AOCs in this area to the stormwater collection system, MacDermid has also retrofitted catch basins CB-1, CB-2, and CB-3 with watertight manhole covers in 1998. The locations of these catch basins are shown on Figure 2.

Prior to 1998, MacDermid covered the catch basins with spill mats during incoming and outgoing shipments of hazardous materials to prevent releases to Steele Brook through the catch basins.

2.5 AOC Letter: AOC-E (continued)

Human Exposure:

The known investigations performed to date in the area of AOC-E are as follows:

- IPC Corporation Groundwater Investigations (estimated to be 1988);
- GZA's Soil and Groundwater Investigations (1995); and
- HRP's Groundwater Sampling Event (2001).

In the area of AOC-E, soil samples collected from GZA borings B-2, B-3, MW-108, and MW-109 (formerly known as GZ-11, GZ-10, GZ-9, and GZ-8), were submitted in January/February 1995 for analysis of TCLP extractable metals¹ and volatile organic compounds by EPA Method 8260. No soil samples were collected from GZA boring B-4 (formerly known as GZ-4) since a concrete obstruction was encountered at six (6) feet.

A summary of the 1995 GZA soil sampling results is provided in Table 8. Included in Table 8 are the applicable CT-RSR's standards DEC and GB PMC. As indicated in Table 8, the CT-RSR GB PMC standards for lead, chromium, and/or nickel were slightly exceeded in B-2 and MW-108. No volatile organic compounds were detected in any of the analyzed soil samples. Descriptions of the DEC and PMC standards are provided in Appendix D. Provided in Appendix I are the laboratory reports for the 1995 GZA soil samples.

In March 1995, GZA collected groundwater samples from the following monitoring wells located in the immediate vicinity of AOC-E:

- MW-106 (formerly MAC-4)
- MW-107 (formerly MAC-3)
- MW-108 (formerly GZ-9)
- MW-109 (formerly GZ-8)
- MW-110 (formerly MAC-1)

The groundwater samples were submitted for analysis of dissolved metals², total and amenable cyanide (excluding monitoring well MW-110), fluoride and VOCs by EPA Method 8260.

In February 2001, HRP collected the second round of groundwater samples from the following monitoring wells located in the immediate vicinity of AOC-E:

- MW-108 (formerly GZ-9)
- MW-109 (formerly GZ-8)
- MW-110 (formerly MAC-1)

HRP did not collect groundwater samples from monitoring wells MW-106 (formerly MAC-4) and MW-107 (formerly MAC-3) for the reasons stated below:

MW-106: Monitoring well could not be located.

MW-107: An obstruction was encountered approximately 6 feet below grade. The cap to well was covered with concrete.

²¹ Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

2.5 AOC Letter: AOC-E (continued)

Human Exposure (continued)

The February 2001 groundwater samples were submitted to EAS Laboratories (EAS), an EPA contract laboratory located in Watertown, Connecticut, for analysis of the same parameters completed in 1995.

A floating petroleum product (approximately 6 inches in depth) was observed in monitoring well MW-108 on February 8, 2001. Prior to sampling this well on February 8, 2001, the floating petroleum product was removed using bailers. This well, which was re-surveyed on February 12 and 14, 2001, was noted to contain approximately 3 inches and ½ inch of floating petroleum product, respectively. A sample of the petroleum product was submitted to EAS for fingerprinting on February 12, 2001. As indicated in Appendix F, the petroleum product was determined to contain primarily High Range Organics (HRO). HRO is comprised of organic compounds which contain approximately 20 to 40 carbon atoms. According to EAS, the petroleum product is substantially identical to 30 weight motor oil. Copies of the gas chromatograph trace and the reference chromatogram for the petroleum product removed from MW-108 are also included in Appendix F. This oil was also determined to contain no PCBs above the concentration of 20 ppm for Arochlors 1016, 1232, 1242, 1248, 1254, and 1260 or above the concentration of 40 ppm for Arochlor 1221. As indicated in Appendix F, low detection limits could not be provided by EAS due to interference.

Surrounding monitoring wells MW-109 and MW-110 and assumed downgradient monitoring well MW-111 (formerly known as GZ-6) contain no visible petroleum product or petroleum sheen. Monitoring well MW-110, however, did exhibit a green tint. Filtered and unfiltered groundwater samples were submitted to EAS for analysis to determine the possible source (i.e. groundwater or fines in the well). The unfiltered groundwater sample was analyzed for metals only. As indicated in Appendix F, the unfiltered groundwater sample exhibited higher chromium, copper, silver, and zinc concentrations, which indicates the fines surrounding this well are contaminated.

Summarized in Table 9 are 1995 and 2001 groundwater sampling results for the monitoring wells located in the immediate vicinity of AOC-E. Included in Table 9 are the applicable CT RSR's SWPC and I/C VC standards (see Appendix D). As indicated in Table 9, the SWPC for copper was exceeded in MW-108, 109, and 110 in February 2001. Provided in Appendices E and F are the 1995 and 2001 groundwater laboratory reports, respectively.

Since the MacDermid facility is located in a GB groundwater classification area and no groundwater drinking supply sources are known to be located in the immediate area, the Groundwater Protection Criteria (GWPC) does not apply (see Section 22a-133k(d) of RCSA).

Based on the data presented in Tables 8 and 9, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-E are as follows:

2.5 AOC Letter: AOC-E (continued)

Human Exposure (continued)

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply. Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		Soil samples collected from borings B-2, B-3, MW-108, and MW-109 exhibited no VOCs (see Table 8). The groundwater within the area of this AOC has exhibited VOCs significantly below the I/C VC standards (see Table 9).
Surface Soil (<2 ft)			X	As indicated in Table 8, the only soil sample, which was collected from a depth of <2 ft and analyzed by GZA, was MW-109. This soil sample which was collected in the footprint of the 1975 lagoon area (i.e., AOC-E1) did not exceed CT-RSR's GA-PMC standards. Since no other 0 to 2 foot subsurface investigations have been performed in the area of AOC-E, it is unknown if the subsurface soil has been impacted.
Surface Water			X	As indicated in Table 9, monitoring wells MW-108, MW-109, and MW-110 have exhibited metals and cyanide concentrations above the SWPC standards. These monitoring wells, however, are located approximately 1,500 feet from the Naugatuck River. In addition, MW-111, which appears to be located hydraulically downgradient of AOC-E, only slightly exceeded the CT-RSR's SWPC for zinc in February 2001. Therefore, it is unknown if the surface water has been impacted.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)	X			As indicated in Table 8, soil samples B-2 and MW-108, which were collected at depth of 10'-12', exhibited metal concentrations above the PMC standards.
Air (outdoors)		X		Not applicable.

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

2.5 AOC Letter: AOC-E (continued)

Human Exposure (continued)

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	Except for the small area located on the western side of the Huntingdon Avenue building, the areas within AOC-E are covered with concrete or asphalt. Therefore, on-site workers and construction workers would only be exposed to potentially contaminated soil if excavation operations are performed in the area of AOC-E. Trespassers are prevented from entering AOC-E by means of a chain-link fence, locked gate, locked facility doors, and building walls. No recreation activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Construction	If excavation operations are performed in the area of AOC-E, construction workers could be exposed to potentially contaminated soil.

Groundwater Control

A summary of the groundwater monitoring data for AOC-E is presented in Table 9. As indicated in Table 9, the CT RSR's SWPC standards for metals and cyanide were exceeded in monitoring wells MW-106 through MW-110 in 1995. In 2001, monitoring wells MW-108, MW-109, and MW-110 also exhibited metal and cyanide concentrations above the CT-RSR's SWPC. The metal and cyanide concentrations in MW-108 and MW-110 were, however, significantly lower in 2001. The concentrations of copper and total cyanide in MW-109 were slightly higher in 2001.

Based on the groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River. The depth to groundwater in the area of AOC-E is approximately 30 feet. The depth to bedrock in the area of AOC-E is estimated to be 80-120 feet based on published data.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

2.5 AOC Letter: AOC-E (continued)

The horizontal and vertical dimensions of the contaminated groundwater in the area of AOC-E have not been defined at this time. However, the concentrations of pollutants detected in the assumed downgradient overburden groundwater monitoring wells (MW-111 and MW-113) are significantly lower than AOC-E's monitoring wells MW-108, MW-109, and MW-110. In addition, the detection of petroleum products or sheen has been limited to monitoring well MW-108. The level of petroleum product in MW-108 has also decreased from a high of six (6) inches on February 8, 2001 to one-half ($\frac{1}{2}$) inch on February 14, 2001.

Data Gaps

- Source of Petroleum Product in MW-108.
- No groundwater sampling results for MW-106 and MW-107 (formerly known as MAC-4 and MAC-3, respectively) for 2/01.
- Upgradient monitoring wells (concentration of contaminants entering AOC-E in the shallow overburden and deeper overburden).
- Concentration of contaminants exiting the site in shallow overburden and deeper overburden (downgradient of AOC-E).
- Mass concentrations of metals and cyanide in soils beneath the unpaved areas located west of the Huntingdon Avenue facility.
- Concentration of tin in the groundwater.
- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polycyclic aromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.6 AOC Letter: AOC-F

AOC Name: *Former 6,000 Gallon UST (East Aurora Street Building)*

AOC Description: This AOC was comprised of one (1) 6,000 gallon UST located on the eastern side of the East Aurora Street building (see Figure 2).

This former #2 fuel oil storage tank was removed from service in September 1998 (see Appendix H). Due to the location of this AOC (partially beneath the East Aurora Street building), it was abandoned in-place as follows:

- Removed remaining fuel oil;
- Cleaned the tank; and
- Filled with foam.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: Releases from the UST in this AOC may have occurred if the structural integrity of the UST had been impacted prior to abandonment in-place or during filling operations. As shown on Figure 2, monitoring well MW-105 appears to be located immediately downgradient of AOC-F. No petroleum hydrocarbon sheen or organic compounds typically contained in petroleum products were observed in MW-105 during the February 2001 sampling event. Soil and groundwater data for MW-105 are presented in Tables 6 and 7, respectively, and discussed under "Human Exposure" and "Groundwater Control" descriptions.

Boring logs for monitoring well MW-105 (see Appendix C) indicated no visual signs of potentially contaminated soil. The field PID readings for MW-105 were ≤ 0.9 ppm (relative to benzene in air), which indicate no significant source of VOC contaminated overburden soils at this location.

Human Exposure:

The known investigations performed to date in the area of AOC-F are as follows:

- GZA Soil and Groundwater Investigations (1995); and
- HRP's Groundwater Sampling Event (2001).

On February 15, 1995 (see Appendix C), GZA installed monitoring well MW-105 (formerly known as GZ-7). Upon installation of this well, the soil sample collected from the 15-17 foot horizon was submitted for analysis of TCLP extractable metals² and VOCs by EPA Method 8260.

A summary of the 1995 GZA soil sampling results is provided in Table 6. Included in Table 6 are the applicable CT RSR's DEC and PMC standards. As indicated in Table 6, no PMC standards were exceeded. Descriptions of the DEC and PMC standards are provided in Appendix D. Provided in Appendix I are the laboratory reports for the GZA soil samples.

²Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

2.6 AOC Letter: AOC-F (continued)

Human Exposure (continued)

In March 1995 and February 2001, groundwater samples were collected from MW-105 and analyzed for dissolved metals², total and amenable cyanide, fluoride and VOCs by EPA Method 8260.

A summary of the groundwater results for MW-105 are presented in Table 7. Included in Table 7 are the applicable CT-RSR's SWPC and I/C VC standards (see Appendix D). No SWPC or I/C VC standards were exceeded in MW-105 in February 2001 (see Table 7). Copies of the 1995 and 2001 groundwater laboratory reports are provided in Appendices E and F, respectively.

Based on the data presented in Tables 6 and 7, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-F are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Groundwater Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	The former 6,000-gallon heating oil UST is located partially beneath the East Aurora Street building and beneath an asphalt cap. No subsurface investigations have been performed in the immediate area of this UST.
Surface Water			X	No SWPC or I/C VC standards were exceeded in MW-105 during February 2001 (see Table 7). However, since groundwater monitoring is currently limited to one (1) downgradient overburden well, the impact to the underlying groundwater (if any) is not known at this time.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	Monitoring well MW-105 appears to be located immediately south of the former 6,000-gallon UST. Although no CT-RSR exceedances were detected in this soil sample, it is not known if this sample was representative of the former UST's subsurface soil.
Air (outdoors)		X		This AOC was used to store only #2 fuel oil, therefore this pathway is not applicable.

2.6 AOC Letter: AOC-F (continued)

Human Exposure (continued)

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Residents Trespassers Workers Construction	AOC-F is not located in a secure area. The area directly above the former UST is covered with an asphalt cap. If soil excavations are performed in the area of this AOC, the listed human receptors could be exposed to potentially contaminated soil. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-F, on-site workers and construction workers could be exposed to potentially contaminated soil (if it exists).

Monitoring well MW-105 appears to be located immediately hydraulically downgradient of AOC-F. As indicated in Table 7, no metals, cyanide or VOC CT-RSR exceedances were detected in this shallow overburden monitoring well in February 2001.

Since the groundwater sampling results are limited to one (1) shallow overburden monitoring well, the horizontal and vertical dimensions of potentially contaminated groundwater in the area of AOC-F have not been defined at this time.

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions.
- Concentration of tin in the groundwater.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.7 AOC Letter: AOC-G

AOC Name: *East Aurora Street Warehouse*

AOC Description: The East Aurora Street warehouse, which is located in the center of the site, was constructed in circa 1985 (see Figure 2). This AOC consists of the main hazardous waste storage area, the quality control area, the finished product storage area and the shipping/receiving area.

The main hazardous waste storage area is currently used by MacDermid for the storage of spent copper etchant solution in containers, process chemicals (excluding solvents) in containers, finished products in containers, wooden pallets, empty containers, and miscellaneous items such as scrap steel, office equipment, etc. This rectangular-shaped storage area measures 93' long by 42' wide. Secondary containment is provided by an epoxy-coated concrete floor, building walls, 3½" high concrete berms and a collection sump. The material collected within the sump is pumped to MacDermid's WWTS (i.e., AOC-E2).

The quality control area, which is located immediately east of the main hazardous waste storage area (see Figure 2), is used for performing spot tests on containers of spent copper etchant. Secondary containment within this triangular-shaped storage area is provided by an epoxy-coated concrete floor, building walls and 3½" to 6" high concrete berms.

Secondary containment within the finished product storage area and the shipping/receiving area is provided by an epoxy-coated floor and building walls. No floor drains are known to be located in these areas.

The areas immediately outside this AOC are covered with asphalt.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: Releases to the environment may potentially occur from the shipping/receiving area in the event of a spill or release during loading and unloading operations. Spills or leaks within the East Aurora Street warehouse would be retained by concrete floor, building walls and concrete berms.

Human Exposure:

The known investigations performed to date in the area of AOC-G are as follows:

- IPC Corporation Soil Test Pits (1985);
- GZA's Soil and Groundwater Investigation (1995); and
- HRP's Groundwater Sampling Event (2001).

2.7 AOC Letter: AOC-G (continued)

Human Exposure (continued)

Prior to construction of the East Aurora Street warehouse, IPC Corporation collected soil samples from five (5) test pits in April 1985. The estimated locations of these test pits (TP-1 through TP-5) are shown on Figure 2. The collected soil samples were analyzed for polychlorinated biphenyls (PCBs) aromatic hydrocarbons, and halogenated organics. Soil samples from TP-2 and TP-4 were also analyzed for the RCRA eight (8) metals and copper, nickel, tin, and zinc by the E.P. Toxicity testing procedure. Soil samples from TP-2, TP-4, and TP-5 were analyzed for oil and grease. The results of these April 1985 soil testing results are presented in Table 10. As indicated in Table 10, TP-2 exhibited concentrations of cadmium, lead, and nickel above CT-RSR's PMC standards and TP-4 exhibited a cadmium concentration slightly above the CT-RSR's PMC standard.

(Note: No laboratory reports could be located.)

Copies of the test pit logs, which were prepared by Heynen Engineers, are provided in Appendix C. The test pit logs indicated the presence of a dark brown/black layer of miscellaneous fill (sludge, metal, soil, roots) in test pits TP-2 (approximately 1 foot thick) and TP-4 (approximately 3 feet thick). Test pit TP-5 indicated a layer of black gravel (approximately 6.5 feet thick) with a strong oil odor.

On January 13, 1995, GZA installed monitoring well MW-111 (formerly known as GZ-6), immediately south of the finished Products Storage Area (see Figure 2). The soil sample collected from the 0.5-2.5 foot horizon was submitted for analysis of TCLP extractable metals² and VOCs by EPA Method 8260. A summary of the GZA's soil sampling results is provided in Table 11. Included in Table 11 are the applicable CT-RSR's DEC and PMC standards (see Appendix D). Provided in Appendix I are the laboratory reports for the GZA 1995 soil samples. In March 1995 and February 2001, groundwater samples were collected from MW-111 and analyzed for dissolved metals², total and amenable cyanide, fluoride and VOCs by EPA Method 8260.

A summary of the groundwater results for MW-111 is presented in Table 12. Included in Table 12 are the applicable CT-RSR's SWPC and I/C VC standards (see Appendix D). As indicated in Table 12, only the SWPC standard for zinc was slightly exceeded in February 2001. Copies of the 1995 and 2001 groundwater laboratory reports are provided in Appendices E and F, respectively.

The boring logs for monitoring well MW-111 (see Appendix C) indicated no visual or olfactory signs of potentially contaminated overburden soil at this location.

Based on the data presented in Tables 10, 11, and 12, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-G are as follows:

²Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

2.7 AOC Letter: AOC-G (continued)

Human Exposure (continued)

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		The concentrations of VOCs detected in the current groundwater monitoring system (see Tables 2-17) are significantly below the CT-RSR's I/C VC standards.
Surface Soil (<2 ft)	X			As indicated in Tables 10 and 11, the soil samples collected from TP-2 in 1985 and MW-111 in 1995 exhibited one (1) or more metal concentration above the CT-RSR's GB PMC standards. The only VOC detected in these soil samples was 0.013 mg/kg of tetra-chloroethylene in TP-5 (below CT-RSR standards).
Surface Water			X	As indicated in Table 12, the concentration of zinc detected in MW-111 during the February 2001 groundwater sampling event (0.15 mg/l), slightly exceeded CT-RSR's SWPC of 0.123 mg/l.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)	X			As indicated in Table 10, the soil sample collected from TP-4 in 1985 at a depth of 4 feet slightly exceeded the CT-RSR's GB PMC standard for cadmium.
Air (outdoors)		X		This AOC is located inside the East Aurora Street building, therefore this pathway is not applicable.

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

2.7 AOC Letter: AOC-G (continued)

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	AOC-G is located in a secure area (inside the East Aurora Street building). If excavation operations are performed in this area (i.e. below concrete floor), on-site workers and construction workers could be exposed to potentially contaminated soil. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-G, on-site workers and construction workers could be exposed to potentially contaminated soil.

Groundwater Control:

Based on groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River. The overburden groundwater monitoring well MW-111 appears to be located hydraulically downgradient of AOC-G. Monitoring well MW-111 was sampled and analyzed in March 1995 and February 2001 (see Table 12).

As indicated in Table 12, only the CT-RSR SWPC standard for zinc was slightly exceeded in monitoring well MW-111 in February 2001.

The horizontal and vertical dimensions of potentially contaminated groundwater in the area of AOC-G have not been determined at this time with the existing groundwater monitoring system.

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions in AOC-G.
- Concentration of tin in the groundwater.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polycyclic aromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.8 AOC Letter: AOC-H

AOC Name: *Flammable Material Rack Storage Area*

AOC Description: The Flammable Material Rack Storage Area is located on the northwestern side of the site, approximately 200 feet north of the Gear Street Building (see Figure 2). This outdoor storage area, which is 40 feet long by 25 feet wide, is used to store containers of raw flammable chemicals such as alcohols, solvents, etc.

Within this storage area the raw material containers are stored on a four-tier high drum rack system. Secondary containment is provided by a concrete floor and a three (3) inch high concrete berm.

Known Releases: No documented releases to the surrounding environment are now to exist for this AOC.

Potential Releases: In the event of a spill or release outside this AOC's secondary containment area, the releases would flow towards the on-site catch basins. All raw material transfer operations at MacDermid, Inc. are performed by experienced forklift operators. Spill control equipment is maintained inside AOC-H.

Human Exposure:

The known investigations performed to date in the area of AOC-H are as follows:

- GZA's Soil and Groundwater Investigation (1995); and
- HRP's Groundwater Sampling Event (2001).

On January 13, 1995, GZA installed groundwater monitoring well MW-112 (formerly known as GZ-3) immediately north of the Gear Street Building (see Figure 2).

During the installation of MW-112, GZA collected and analyzed the soil sample collected from the 0.5-2.5 foot horizon. A summary of the GZA's soil sampling results is provided in Table 13. Included in Table 13 are the applicable CT-RSR's DEC and PMC standards (see Appendix D). As indicated in Table 13, only the PMC standard for lead was exceeded. Provided in Appendix I are the laboratory reports for the GZA 1995 soil samples.

The boring log for monitoring well MW-112 indicated the presence of "cinders/ash (fill)" at the depth of 0.5 to 2.5 feet. The field PID readings for the soils screened during the installation of MW-112 were below laboratory detection limit (i.e. indicating that no VOC contaminated overburden soils were detected at this location).

In March 1995 and February 2001, groundwater samples were collected from MW-112 and analyzed for dissolved metals², total and amenable cyanide, fluoride and VOCs by EPA Method 8260. Included in Table 14 are the applicable CT-RSR's SWPC and I/C VC standards (see Appendix D). As indicated in Table 14, only the SWPC for zinc was slightly exceeded in February 2001. Copies of the 1995 and 2001 groundwater laboratory reports are provided in Appendices E and F, respectively.

2.8 AOC Letter: AOC-H (continued)

Human Exposure (continued)

Based on the data presented in Tables 13 and 14, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-H are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	The 1995 soil sample collected at the 0.5-2.5' horizon in MW-112 did exhibit a lead concentration above CT-RSR's GB PMC. This monitoring well, however, is located approximately 150 feet south of AOC-H (i.e., not located in the footprint of AOC-H) (see Figure 2). This lead contamination may have been caused by the Waterbury Steel Ball Company who occupied the Gear Street Building from prior to 1992 to circa 1977. The area above and surrounding AOC-H are covered with asphalt and/or concrete. No know subsurface investigations have been performed in the immediate area of AOC-H.
Surface Water			X	As indicated in Table 14, the concentration of zinc detected in MW-112 in February 2001 (0.16 mg/l) slightly exceeded CT-RSR's SWPC of 0.123 mg/l. MW-112 appears to be located hydraulically downgradient of AOC-H.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	No subsurface investigations have been performed in the area of AOC-H.
Air (outdoors)		X		Not applicable.

Summarized below are the human receptors, which are expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

²Arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc.

2.8 AOC Letter: AOC-H (continued)

Human Exposure (continued)

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	AOC-H is located in a secure area. The area surrounding this AOC is covered with a concrete or asphalt cap. Therefore, on-site workers and construction workers exposure to potentially contaminated soil would only occur if excavation activities are performed in this area. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-H, on-site workers and construction workers could be exposed to potentially contaminated soil.

Groundwater Control

Based on groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River. The overburden groundwater monitoring well MW-112 appears to be located hydraulically downgradient of AOC-H.

Summary of the groundwater monitoring data for MW-112 is provided in Tables 14. As indicated in Table 14, only the CT-RSR's SWPC standards for zinc was slightly exceeded during the February 2001 sampling event.

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions in AOC-H.
- Concentration of tin in the groundwater.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.9 AOC Letter: AOC-I

AOC Name: *Ink Spill Area*

AOC Description: In 1987, IPC personnel discovered stained soil underneath a concrete pad located north of the Gear Street Building and near a former ink spill sump (IPC 1987). The spill material appeared to be an epoxy-like ink product which was manufactured at MacDermid, Inc. The material safety data sheet for the MacDermid ink product MACUMASK 9415 (suspected spill material) was reported to be comprised of the following:

- Pigments (organic, non-metallic) - 0.4%
- Catalyst (aromatic ketones) - 7.8%
- Vehicle (acrylic monomers) - 75.5%
- Additives (filler such as MgO, CaSO₄, etc.)

The release was reported to the CT-DEP and cleaned-up in accordance with CT-DEP's "Contaminated Soils Removal and Disposal Guidelines". Approximately 550 cubic feet of soil was reportedly removed from this release area and disposed off-site.

The estimated location of this release area is shown on Figure 2. Description of the remedial actions followed in 1987 is provided in the "Known Releases" description.

Known Releases: This release was reported to have occurred from the former ink spill sump. The date this release occurred is not readily known.

The remedial measures performed at this AOC in 1987/1988 are reported to be the following:

- Following removal of the concrete pad, collected two (2) composite soil samples from the western face of the excavation at the following locations:
 - 30 inches below grade, visually clean soil; and
 - 18 inches below grade, ink/soil layer.
- Based on soil sampling results (see Table 15), excavated to a depth of 30-36 inches. The area of excavation was 11.5 feet by 16 feet;
- Following excavation, collected a composite soil sample from the bottom of the excavation in November/December 1987. Sampling results are presented in Table 15;
- Collected soil samples from the eastern and western face (i.e., sidewalls) of the excavation in March 1988; and
- Based on the November/December 1987 and March 1988 soil sampling results (see Table 15), requested CT-DEP approval to backfill the excavation.

2.8 AOC Letter: AOC-I (continued)

The excavation area was backfilled and is now covered with asphalt (i.e., part of the parking lot). No written approval to backfill this excavation is known to have been received from the CT-DEP.

Potential Releases: The release of epoxy-like ink at AOC-I may have impacted the underlying groundwater. Groundwater data in the area of AOC-I is provided in Table 17 and discussed in "Human Exposure" and "Groundwater Control" descriptions.

Human Exposure:

The known investigations performed to date in the area of AOC-I are as follows:

- IPC Corporation's Soil Testing Results (1987/1988);
- GZA's Groundwater Investigation (1995); and
- HRP's Groundwater Sampling Event (2001).

Description of the contaminated soil investigation and removal activities performed in 1987/1988 by the IPC Corporation is provided in AOC-I's "Description" and "Known Releases" write-ups. A summary of the IPC soil sampling results is provided in Table 15. Included in Table 15 are the applicable CT-RSR's DEC and PMC standards (see Appendix C). Provided in Appendix L are the laboratory reports for the IPC 1987 soil sample.

The boring log for monitoring well MW-113 indicated no visual or olfactory potentially contaminated overburden soil at this location.

On January 15, 1995, GZA installed groundwater monitoring well MW-113 immediately south of the Gear Street Building. This monitoring well, which appears to be located hydraulically downgradient of AOC-I, was sampled by GZA in March 1995 and HRP in February 2001. Based on the groundwater monitoring results, which are summarized in Table 16, only the CT-RSR's SWPC for zinc was slightly exceeded in February 2001. No solvents, which were detected in 1987/1988 soil sampling activity (see Table 15) have been detected in the groundwater. Copies of the 1995 and 2001 groundwater laboratory reports are provided in Appendices E and F, respectively.

Based on the data presented in Tables 15 and 16, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-I are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	The contaminated soil detected in this AOC in 1987/1988 was excavated and disposed of off-site. This area is currently covered with an asphalt cover.

2.9 AOC Letter: AOC-I (continued)

Human Exposure (continued)

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Surface Water			X	As indicated in Table 16, the concentration of zinc detected in MW-113 in February 2001 (0.16 mg/l) slightly exceeded CT-RSR's SWPC of 0.123 mg/l. MW-113 appears to be located hydraulically downgradient of AOC-I.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known.
Subsurface Soil (>2 ft)			X	The contaminated soil detected in AOC-I was excavated and disposed off-site in 1987.
Air (outdoors)		X		Not applicable.

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	AOC-I is located in a secure area. The area surrounding this AOC is covered with asphalt (i.e., part of the parking lot). Therefore, on-site workers and construction workers exposure to potentially contaminated soil would only occur if excavation activities are performed in this area. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,500 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-I, on-site workers and construction workers could be exposed to potentially contaminated soil.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

2.9 AOC Letter: AOC-I (continued)

Groundwater Control

Based on groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River. The overburden groundwater monitoring well MW-113 appears to be located hydraulically downgradient of AOC-I.

Summary of the groundwater monitoring data for MW-113 is provided in Table 16. As indicated in Table 16, only the CT-RSR's SWPC standard for zinc was slightly exceeded during the February 2001 sampling event. The horizontal and vertical dimensions of potentially contaminated groundwater in the area of AOC-I have not been defined at this time.

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions in AOC-I.
- Concentration of tin in the groundwater.
- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.10 AOC Letter: AOC-J

AOC Name: 4,000 Gallon UST (Gear Street Building)

AOC Description: This AOC is comprised of one (1) 4,000 gallon #2 fuel oil underground storage tank (UST) located on the northeastern side of the Gear Street building (see Figure 2). This UST, which was installed in November 1988, replaced a 10,000-gallon UST that was installed in 1963. The former 10,000-gallon UST was also used to store #2 fuel oil. The existing 4,000 gallon steel UST is cathodically protected. The cathodically protected system is tested at least annually to ensure the required negative voltage between the UST and the copper sulfate electrode is being maintained.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: Releases from the UST in this AOC may potentially occur if the structural integrity of the UST has been impacted or during filling operations. As shown on Figure 2, monitoring well MW-113 appears to be located downgradient of AOC-J. No petroleum hydrocarbon sheen or organic compounds typically contained in petroleum products were observed in MW-113 during the February 2001 sampling event. Groundwater data for MW-113 are presented in Table 16, and discussed under "Human Exposure" and "Groundwater Control" descriptions.

Human Exposure:

The known investigations performed to date in the general area of AOC-J are as follows:

- GZA's Groundwater Investigations (1995); and
- HRP's Groundwater Sampling Event (2001).

On January 15, 1995 (see Appendix C), GZA installed monitoring well MW-113 (formerly known as GZ-5). This monitoring well, which appears to be located hydraulically downgradient of AOC-J, was sampled by GZA in March 1995 and HRP in February 2001.

A summary of the groundwater results for MW-113 are presented in Table 16. Included in Table 16 are the applicable CT-RSR's SWPC and I/C VC standards (see Appendix D). In February 2001, only the CT-RSR SWPC standard for zinc was slightly exceeded. No petroleum hydrocarbon sheen or organic compounds typically contained in petroleum products were observed in MW-113 during the February 2001 sampling event.

Based on the data presented in Table 16, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-J are as follows:

2.10 AOC Letter: AOC-J (continued)

Human Exposure (continued)

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Groundwater Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (~2 ft)			X	The 4,000-gallon heating oil UST is located beneath an asphalt cap (i.e., part of the parking lot). No subsurface investigations have been performed in the immediate area of this UST. Monitoring well MW-113 is located approximately 300 feet south of the 10,000-gallon UST. Therefore, the soil sample collected and analyzed by GZA from the 0'-2' soil horizon of MW-113 in 1995, is not representative of this UST's subsurface soils.
Surface Water			X	No SWPC or I/C VC standards were exceeded in MW-113 during February 2001 (see Table 16). However, since groundwater monitoring is currently limited to one (1) downgradient overburden well and this well is located approximately 300 feet south of the UST, the impact to the underlying groundwater (if any) is not known at this time..
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known.
Subsurface Soil (>2 ft)			X	No subsurface investigations of greater than 2 feet have been performed in the area immediately surrounding the UST.
Air (outdoors)		X		This AOC is used to store only #2 fuel oil, therefore this pathway is not applicable.

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

2.10 AOC Letter: AOC-J (continued)

Human Exposure (continued)

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Residents Trespassers Workers Construction	AOC-J is located in a secure area, north of the Gear Street building. The area directly above the UST is covered with an asphalt cap. If soil excavations are performed in the area of this AOC, the listed human receptors could be exposed to potentially contaminated soil. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,300 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-J, on-site workers and construction workers could be exposed to potentially contaminated soil (if it exists).

Groundwater Control

Monitoring well MW-113 appears to be located hydraulically downgradient of AOC-J. As indicated in Table 16, only the VOC CT-RSR SWPC standard for zinc was exceeded in this shallow overburden monitoring well in February 2001.

Since the groundwater sampling results are limited to one (1) shallow overburden monitoring well which is located approximately 300 feet south of this AOC, the horizontal and vertical dimensions of potentially contaminated groundwater in the area of AOC-J have not been defined at this time.

Data Gaps:

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical directions.
- Concentration of tin in the groundwater.
- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

2.11 AOC Letter: AOC-K

AOC Name: **AOC-K1 - Former Flammable Storage Area**

AOC Description: The Former Flammable Storage Area, which was located in the northeastern side of the Gear Street Building (see Figure 2), was used to store containers of flammable hazardous waste. Within this former 8 foot by 10 foot storage area, a maximum of sixteen (16) 55-gallon drums of hazardous waste would be managed at any one time. The types of waste managed within this area included flammable waste solvents (e.g., toluene, methyl ethyl ketone, xylene, etc.).

Secondary containment was provided by an epoxy-coated concrete floor and 4" x 4" epoxy-coated angle iron berms.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To determine if the former hazardous waste storage operation had impacted the environment, closure activities were initiated in December 1999.

The closure activities, which are summarized in the report entitled, "RCRA Closure Summary for Former Hazardous Waste Storage and Recycling Areas" (see Appendix M) included the following:

- Analysis of the concrete floor of the former storage area for the hazardous constituents listed under 40 CFR 264 Appendix IX. The results of this analysis were used to finalize the list of constituents of concern (COCs) managed in this former storage area;
- Analysis of concrete floor (discrete samples) of the former storage area for all identified COCs by mass analysis and all metallic COCs by the E.P. Toxicity testing procedure; and
- Comparison of the concrete sampling results to the CT-DEP approved closure standards.

Based on the concrete chip sampling results (see Tables 1 and 10 of Appendix M), it is HRP's opinion that this AOC has not impacted the environment (i.e., clean closure).

2.11 AOC Letter: AOC-K (continued)

AOC Name: AOC-K2 – Former NMP Recycling Area

AOC Description: The Former NMP Recycling Area was located in the same room as the Former Flammable Storage Area (see figure 2). This former recycling operation contained a 500-gallon above-ground reactor tank and a 55-gallon stainless steel product tank.

Secondary containment was provided by the concrete floor, building walls, and spill collection floor trench. Any material collected within the floor trench would have been discharged to MacDermid's on-site industrial WWTS (i.e., AOC-E2).

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To determine if the former hazardous waste recycling operation had impacted the environment, closure activities were initiated in December 1999.

The closure activities which are summarized in the report entitled, "RCRA Closure Summary for Former Hazardous Waste Storage and Recycling Areas" (see Appendix M) included the following:

- Analysis of concrete floor of the former recycling area for the hazardous constituents listed under 40 CFR 264 Appendix IX. The results of this analysis were used to finalize the list of constituents of concern (COCs) managed in this former recycling area;
- Analysis of the second concrete slab for all identified COCs by mass analysis and all metallic COCs by the E.P. Toxicity testing procedure. Discrete concrete samples were collected from beneath the cracks and gaps identified in the concrete floor surface of the recycling area;
- Analysis of subsurface soil directly beneath the second concrete slab sampled areas for all identified COCs by mass analysis and all metallic COCs by the E.P. Toxicity testing procedure;
- Analysis of concrete floor surface (discrete samples) of the former recycling area for all identified COCs by mass analysis and all metallic COCs by the E.P. Toxicity testing procedure; and
- Comparison of the concrete and soil sampling results to the CT-DEP approved closure standards.

Based on the sampling results (see Tables 3, 4, and 5 of Appendix M), approximately 5 cubic yards of concrete requires removal and disposal to meet CT-DEP's approved closure standards.

2.11 AOC Letter: AOC-K (continued)

AOC Name: *AOC-K3 – Former Solder Stripper Recycling Area*

AOC Description: The former Solder Stripper Recycling Area was located in the northern end of the Gear Street Building (see Figure 2). This former recycling area contained three (3) above-ground process tanks. The total capacity of these tanks was 5,000 gallons. This batch recycling operation was used to process 1,300 gallons of solder stripper at a time.

Secondary containment was provided by an epoxy-coated concrete floor, building walls, and spill collection floor trench. The floor trench, which has been removed from service, would direct any collected material to MacDermid's on-site industrial WWTS (i.e., AOC-E2).

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To determine if the former hazardous waste recycling operation had impacted the environment, closure activities were initiated in December 1999.

The closure activities which are summarized in the report entitled, "RCRA Closure Summary for Former Hazardous Waste Storage and Recycling Areas" (see Appendix M) included the following:

- Analysis of concrete floor of the former storage area for the hazardous constituents listed under 40 CFR 264 Appendix IX. The results of this analysis were used to finalize the list of constituents of concern (COCs) managed in this former storage area;
- Analysis of subsurface soil (beneath concrete floor cracks and gaps) for all identified COCs by mass analysis and metallic COCs by the E.P. Toxicity testing procedure;
- Analysis of concrete floor surface (discrete samples) of the former recycling area for all identified COCs by mass analysis and all metallic COC by the E.P. Toxicity testing procedure;
- Comparison of the soil and concrete sampling results to the CT-DEP approved closure standards.

Based on the soil and the concrete chip sampling results (see Tables 2, 4, 6, 7, 8, 9, and 12 of Appendix M), approximately 1.5 cubic yards of contaminated soil and 1.5 cubic yards of contaminated concrete require removal and disposal to meet CT-DEP's approved clean closure standards.

2.11 AOC Letter: AOC-K (continued)

AOC Name: *AOC-K4 – 2000 Gear Street Industrial Wastewater Sump Release*

AOC Description: On December 5, 2000, a release from the industrial wastewater sump located in the northern end of the former Solder Stripper Recycling Area (see Figure 2) was discovered by MacDermid, Inc. personnel. This release was reported to the CT-DEP on December 6, 2000 (see Appendix N).

The volume of process industrial wastewater released from this sump is unknown.

Known Releases: As described above, a release from the industrial wastewater sump located in the northern end of the former Solder Stripper Recycling Area was discovered on December 5, 2000.

Potential Releases: To prevent any further releases from this sump, MacDermid has performed the following:

- Re-directed industrial wastewater discharge to another wastewater collection sump;
- Drained the leaking collection sump of any wastewater; and
- Filled-in the leaking collection sump with concrete.

2.11 AOC Letter: AOC-K (continued)

AOC Name: *AOC-K5 – Ink Manufacturing Area*

AOC Description: This AOC is located in the southeastern side of the Gear Street Building (see Figure 2). This area, which is comprised of tanks and roller mills, is used to prepare inks for the printed circuit board industry. The types of chemicals used in this area include: pigments, solvents, acrylimides, anilines, and resins.

Known Releases: No documented releases to the surrounding environment are known to exist for this AOC.

Potential Releases: To prevent releases from entering the environment, this AOC is equipped with the following secondary containment provisions: epoxy-coated concrete floor, building walls, and wastewater collection sump. The material collected in the collection sump would be discharged to MacDermid's industrial WWTS (i.e., AOC-E2).

2.11 AOC Letter: AOC-K (continued)

AOC Name: *AOC-K6 – Electroless Nickel Area*

AOC Description: This AOC is located along the western side of the Gear Street Building (see Figure 2). This area, which contains eight (8) process tanks with a capacity of up to 1,200 gallons (TRC, 1993), is used to manufacture electroless nickel plating solutions.

Known Releases: No documented releases to the surrounding environment are known to exist for AOC-K6.

Potential Releases: To prevent releases from entering the environment, this AOC is equipped with the following secondary containment provisions: epoxy-coated concrete floor, building walls, and wastewater collection sump. The material collected in the collection sump would be discharged to MacDermid's industrial WWTS (i.e., AOC-E2).

2.11 AOC Letter: AOC-K (continued)

AOC Name: AOC-K7 – Satellite Storage Areas (3)

AOC Description: Located with AOC-I are three (3) hazardous waste satellite storage areas. As shown on Figure 2, the satellite storage areas are located in the former Solder Stripper Recycling Area, in the Ink Manufacturing Area and immediately west of the Ink Manufacturing Area. Located within each satellite storage area are a maximum of two (2) 55-gallon drums, which are used to temporarily store the hazardous waste generated in the area. When the drum is full, it is transferred to MacDermid's ≤ 90 day container storage area (i.e. AOC-K8).

Known Releases: No documented releases to the surrounding environment are known to exist for AOC-K7.

Potential Releases: To prevent releases from entering the environment, this AOC is equipped with the following secondary containment provisions: epoxy-coated concrete floor, building walls, and wastewater collection sump. The material collected in the collection sump would be discharged to MacDermid's industrial WWTS (i.e., AOC-E2).

2.11 AOC Letter: AOC-K (continued)

AOC Name: AOC-K8 – Chemical Storage Area

AOC Description: This AOC, which is located in the southern end of the Gear Street Building (see Figure 2) consists of the ≤ 90 day hazardous waste storage area and the Chemical Storage Area. The Chemical Storage Area is the former Combustible Storage Area.

The ≤ 90 day hazardous waste storage area measure approximately 40 feet long by 20 feet wide. Secondary containment for this hazardous waste storage area is provided by an epoxy-coated concrete floor and 4" high epoxy-coated angle-iron.

The Chemical Storage Area (former Combustible Storage Area) was designed to store up to fifty-four (54) 55-gallon drums and four (4) 330-gallon storage totes. Secondary containment for this storage area is provided by an epoxy-coated concrete floor and 4" high epoxy-coated angle-iron.

Known Releases: No documented releases to the surrounding environment are known to exist for AOC-K8.

Potential Releases: To prevent releases from entering the environment, this AOC is equipped with the following secondary containment provisions: epoxy-coated concrete floor, building walls, and wastewater collection sump. The material collected in the collection sump would be discharged to MacDermid's industrial WWTS (i.e., AOC-E2).

2.11 AOC Letter: AOC-K (continued)

Human Exposure:

The known investigations performed to date in the area of AOC-K are as follows:

- AOC-K1 Closure Activities (2000);
- AOC-K2 Closure Activities (2000);
- AOC-K3 Closure Activities (2000);
- GZA's Soil and Groundwater Investigation (1995); and
- HRP's Groundwater Sampling Event (2001).

A description of the closure activities performed in AOC-K1, K2, and K3 in 2000 are provided in Appendix M. As discussed under Section 3.0 of Appendix M, the following materials are known to require removal and disposal to meet the applicable CT-RSR's standards:

- 5 cubic yards of contaminated concrete from AOC-K2;
- 1.5 cubic yards of contaminated concrete from AOC-K3;
- 1.5 cubic yards of contaminated soil from AOC-K3.

On January 15, 1995, GZA installed ground water monitoring well MW-113 (formerly known as GZ-5) immediately south of the Gear Street Building. During installation of this monitoring well, GZA submitted the soil sample collected from the 0-2' horizon for analysis. A summary of the GZA's soil sampling results is provided in Table 17. Included in Table 17 are the applicable CT-RSR's DEC and PMC standards (see Appendix D). Provided in Appendix I are the laboratory reports for the GZA 1995 soil samples.

Based on the data presented in Tables 16 and 17 and the Closure Report (see Appendix M), the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-K are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply. Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		The concentrations detected in all soil, concrete and groundwater samples collected from this AOC have been significantly below CT-RSR's I/C VC standards.
Surface Soil (<2 ft)	X			The soil samples collected from AOC-K2 and AOC-K3 have exhibited concentrations above the applicable CT-RSR's standards.

2.11 AOC Letter: AOC-K (continued)

Human Exposure (continued)

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Surface Water			X	As indicated in Table 16, the concentration of zinc detected in February 2001 (0.16 mg/l), slightly exceeded CT-RSR's SWPC of 0.123 mg/l. It should be noted that monitoring well MW-112, which appears to be located directly upgradient of MW-111, exhibited the same zinc concentration of 0.16 mg/l.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	Subsurface investigations within the footprint of AOC-K have been limited to the top two (2) feet.
Air (outdoors)		X		Not applicable.

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	AOC-K is located in a secure area and is covered with a concrete floor. Therefore, on-site workers and construction workers exposure to contaminated soil would only occur if excavation activities are performed in this AOC. No recreational activities are performed in this area.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,300 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Construction	If excavation operations are performed in the area of AOC-K, construction workers could be exposed to potentially contaminated soil.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

2.11 AOC Letter: AOC-K (continued)

Groundwater Control

Based on the groundwater elevations measured in March 1995 and February 2001, the overburden groundwater appears to be flowing in a south-southeast direction towards the Naugatuck River (see Figure 3). The overburden groundwater monitoring well MW-113 appears to be located hydraulically downgradient of AOC-K. A summary of the groundwater monitoring data for MW-113 is provided in Table 16. As indicated in Table 16, the CT-RSR's SWPC standard for zinc was slightly exceeded in February 2001.

The horizontal and vertical dimensions of the contaminated groundwater in the area of AOC-K have not been defined at this time.

Data Gaps

- Groundwater monitoring system which defines the quality of groundwater in the horizontal and vertical direction.
- Concentration of tin in the groundwater.
- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

2.12 AOC Letter: AOC-L

AOC Name: *Transformer Vault*

AOC Description: This AOC is located on the south side of the Gear Street Building (see Figure 2). This 4'x4'x4' steel transformer vault is located on a concrete pad. It is unknown at this time if the transformer contains or has contained PCBs.

Known Releases: No documented releases to the surrounding environment are known to exist for AOC-L.

Potential Releases: Releases from this AOC may potentially occur if the structural integrity of the steel transformer is impacted.

Human Exposure:

The known investigations performed in the area of AOC-L are as follows:

- GZA's Soil and Groundwater Investigations (1995); and
- HRP's Groundwater Sampling event (2001).

Descriptions of these investigations are provided in AOC-K and Tables 16 and 17.

Based on the data presented in Tables 16 and 17, the environmental media (i.e. groundwater, soil, etc.) known or reasonably suspected to be "contaminated" above the applicable protective risk-based standards in the area of AOC-L are as follows:

Contaminated Media Table				
Pathway	Yes	No	Unknown	Rationale
Groundwater		X		Groundwater is not used on-site or downgradient of the site as a drinking water source, therefore, CT RSR's GWPC does not apply (see Section 22a-133k-3(d) of the RSCA). Provided in Appendix G is the February 2001 Well Receptor Survey completed by HRP.
Air (indoors)		X		This AOC is located outdoors, therefore this pathway is not applicable.
Surface Soil (<2 ft)			X	No subsurface investigations have been performed in the immediate area of AOC-L.
Surface Water			X	Although no petroleum products have been detected in monitoring well MW-113, only two (2) sampling events have been completed to date.
Sediment			X	Impact to the sediment located in the Naugatuck River (if any) is not known at this time.
Subsurface Soil (>2 ft)			X	No subsurface investigations of greater than 2 feet have been performed in the area immediately surrounding this AOC.
Air (outdoors)		X		This AOC is used to store only transformer oil, therefore this pathway is not applicable.

2.12 AOC Letter: AOC-L (continued)

Human Exposure (continued)

Summarized below are the human receptors, which might be expected to be exposed to contaminated media under current site conditions (i.e. known or suspected to be above appropriate risk-based standards).

Human Receptors Table		
Contaminated Media	Known or Suspected Human Receptor(s) ¹	Rationale
Surficial Soil (<2 ft)	Workers Construction	AOC-L is located in a secure area. Therefore, on-site workers and construction workers would only be exposed to potentially contaminated soil if excavation operations are performed.
Surface Water and Sediment	Residents Recreation	The groundwater flow direction (see Figure 3) appears to be south-southeast towards the Naugatuck River, which is located approximately 1,300 feet from this AOC. Located between this AOC and the Naugatuck River are other manufacturing activities (e.g., a scrap metal recycler and a brass mill), and Route 8. Although no swimming area or boat launch is located in the area immediately downgradient of MacDermid, Inc., sport fishing occasionally occurs in this area. Workers and trespassers are not considered to be known or suspected human receptors because no surface water bodies are located on-site.
Subsurface Soil (>2 ft)	Workers Construction	If excavation operations are performed in the area of AOC-L, on-site workers and construction workers could be potentially exposed to contaminated soil (if it exists).

Groundwater Control

Monitoring well MW-113 (formerly known as GZ-5) appears to be located hydraulically downgradient of AOC-L. This well exhibited no petroleum sheen in February 2001.

Data Gaps:

- Determine the current and former content (i.e., PCBs) of the transformer.
- Seasonal groundwater data.
- Concentration of tin in the groundwater.

¹ The human receptors, which were evaluated included: residents, workers, construction workers, trespassers, and recreation. The day-care and food receptors were not evaluated because no day-care centers are located in the area and no crops are grown in the area.

- Presence of total petroleum hydrocarbons in the groundwater. Each existing and new monitoring well in the area of this AOC should be initially analyzed for total petroleum hydrocarbons. If total petroleum hydrocarbons are detected, the monitoring well(s) associated with this AOC should be analyzed for total petroleum hydrocarbons and also polyaromatic hydrocarbons in the next sampling event.
- Impact (if any) to the Naugatuck River's surface water and sediment.

May 21, 2001
Rev. No. 1

TABLES

TABLE 1
AOCs CLUSTERING
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

AOC Letter	Clustering With Other AOCs	AOC Name	Former TRC AOC Number	Reasons
A	No	Potentially Contaminated Soil Disposal Area	1	Located >400' from the nearest AOC; not located in a secure area, therefore, current potential off-site receptors exist; appears to be located upgradient of only AOC-B (USTs) and AOC-C (Dry Chemical Silos), which contain different materials (i.e. potential contaminants).
B	No	Underground Storage Tanks (2)	4	Used to store only heating oil (i.e., different contaminants); no history of releases.
C	No	Dry Chemical Silos	7	Potential contaminants are not similar to other AOCs; no history of release.
D	Yes	Pilot Plant (AOC-D1) Main Mixing Area (AOC-D2)	9 10	Located in close proximity to each other; used to manage similar materials; exposure pathways and receptors are expected to be similar.
E	Yes	Former Waste Lagoons (AOC-E1) Wastewater Treatment System (AOC-E2) Bulk Waste Unloading and Storage Area (AOC-E3) Spent Copper Etchant Recycling Area (AOC-E4) Acid Tank Farm (AOC-E5) 1994 Spent Copper Etchant Spill (AOC-E6) Former East Aurora Street Building UST	2 6 14 15 19 None None	All areas are located in close proximity of each other; AOCs E3 and E5 appear to be covering a portion of the 1975 lagoon area; monitoring wells MW-106, MW-107, MW-109, and MW-110 exhibited similar contaminants above CT-RSRs in 1995; potential exposure pathways appears to be the same.
F	No	East Aurora Street Warehouse	8	Used to store only heating oil (i.e. different contaminants); no history of releases.
G	No	East Aurora Street Warehouse	8	On-site activities have been limited primarily to storage; building was not built until 1985/1986; monitoring wells MW-104, MW-105, and MW-111 (located down- and/or side-gradient of the warehouse) exhibited concentrations below CT-RSR standards in 1995.

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TABLE 1
AOCs CLUSTERING

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

AOC Letter	Clustering With Other AOCs	AOC Name	Former TRC AOC Number	Reasons
H	No	Flammable Rack Storage	12	Potential contaminants are not similar to other AOCs; no history of release.
I	No	Ink Spill Area	3	Located outside the Gear Street building, release has occurred in this AOC.
J	No	Gear Street Building UST	None	Used to store only heating oil (i.e. different contaminants); no history of releases.
K	Yes	Former Flammable Storage Area (AOC-K1)	13 (part of)	All located in close proximity to each other; inside the Gear Street Building; exposure pathways and receptors are expected to be similar.
		Former NMP Recycling Area (AOC-K2)	13 (part of)	
		Former Solder Stripper Recycling Area (AOC-K3)	17	
		2000 Gear Street Industrial Wastewater Sump Re-lease (AOC-K4)	None	
		Ink Manufacturing Area (AOC-K5)	16	
		Electroless Nickel Area (AOC-K6)	18	
L	No	Satellite Storage Areas (AOC-K7)	11	Potential contaminants are only petroleum hydrocarbons and PCBs; no history of releases.
		Chemical Storage Area (AOC-K8)	13 (part of)	
		Transformer Vault	5	

TABLE 2
SUMMARY OF E.P. TOXICITY TEST RESULTS FOR AOC-A

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample Number					Residential DEC ¹ (mg/kg)	Industrial / Commercial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
	1	2	3	4	5			
Arsenic (mg/l)	ND <0.1	ND <0.1	ND <0.01	ND <0.01	ND <0.01	10	10	0.5
Barium (mg/l)	ND <0.1	ND <0.1	ND <0.05	ND <0.05	ND <0.05	4,700	140,000	10.0
Cadmium (mg/l)	ND <0.1	ND <0.1	0.04	0.02	0.04	34	1,000	0.05
Chromium (total) (mg/l)	ND <0.1	ND <0.1	0.19	0.24	0.24	100 ²	100 ²	0.5
Lead (mg/l)	ND <0.1	ND <0.1	ND <0.02	ND <0.02	ND <0.02	500	1,000	0.15
Mercury (mg/l)	ND <0.01	ND <0.01	ND <0.001	ND <0.001	ND <0.001	20	610	0.02
Selenium (mg/l)	ND <0.1	ND <0.1	ND <0.01	ND <0.01	ND <0.01	340	10,000	0.5
Silver (mg/l)	0.13	0.14	ND <0.01	ND <0.01	ND <0.01	340	10,000	0.36

Sample Identification:

- 1 & 2 Excavated from the sludge cell by MacDermid personnel, January 1986.
- 3 Composite of drums generated May/June/July 1981.
- 4 Composite of drums generated August/September 1981.
- 5 Composite of drums generated October/November 1981.

ND = Not Detected.

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

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TABLE 3
SUMMARY OF GROUNDWATER RESULTS FOR AOC-A
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date							SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	MW-102			MW-101					
	4/86	3/95	2/01	4/86	3/95	2/01	2/01		
Arsenic (mg/l)	NA	ND<0.005	ND<0.005	NA	ND<0.005	0.0062	0.004	None	
Barium (mg/l)	NA	0.016	0.15	NA	0.003	0.18	None	None	
Cadmium (mg/l)	NA	ND<0.004	ND<0.005	NA	ND<0.004	ND<0.005	0.006	None	
Chromium, Total (mg/l)	ND<0.05	ND<0.005	ND<0.02	ND<0.05	ND<0.005	ND<0.02	0.11 ²	None	
Copper (mg/l)	ND<0.05	0.060	0.01	ND<0.05	0.030	0.011	0.048	None	
Lead (mg/l)	ND<0.05	ND<0.003	ND<0.005	ND<0.05	ND<0.003	ND<0.05	0.013	None	
Mercury (mg/l)	NA	ND<0.0002	ND<0.0002	NA	ND<0.0002	ND<0.0002	0.0004	None	
Nickel (mg/l)	ND<0.02	ND<0.054	ND<0.02	ND<0.02	ND<0.054	ND<0.02	0.880	None	
Selenium (mg/l)	NA	ND<0.005	ND<0.005	NA	ND<0.005	ND<0.005	0.050	None	
Silver (mg/l)	ND<0.01	0.011	ND<0.01	ND<0.01	ND<0.007	ND<0.01	0.012	None	
Zinc (mg/l)	ND<0.01	0.067	0.043	ND<0.01	ND<0.020	0.11	0.123	None	
Fluoride (mg/l)	0.58	0.10	ND<0.20	46.5	0.07	ND<0.20	None	None	
Cyanide (Total) (mg/l)	ND<0.1	0.13	ND<0.01	ND<0.1	ND<0.01	ND<0.01	0.052	None	
Cyanide (Amenable) (mg/l)	NA	ND<0.01	ND<0.01	NA	NA	ND<0.01	None	None	
Ammonia	ND<0.05	NA	NA	ND<0.05	NA	NA	None	None	
PH	6.7	NA	NA	6.4	NA	NA	None	None	
Acetone (mg/l)	NA	ND	0.014	NA	ND	0.011	None	50	
Carbon Disulfide (mg/l)	NA	ND	BDL	NA	ND	NA	None	None	
Chlorobenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	420	6.15	
Chloroform (mg/l)	NA	ND	BDL	NA	ND	BDL	141	0.71	
Chloromethane (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None	
2-Chlorotoluene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None	
1,2-Dichlorobenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	170	50	
1,3-Dichlorobenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	26	50	
1,4-Dichlorobenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	26	50	

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Associates, Inc.

TABLE 3
SUMMARY OF GROUNDWATER RESULTS FOR AOC-A
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date						SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	MW-102			MW-101				
	4/86	3/95	2/01	4/86	3/95	2/01		
1, 1-Dichloroethane (mg/l)	NA	ND	BDL	NA	ND	BDL	None	50
1, 2-Dichloroethane (mg/l)	NA	ND	BDL	NA	ND	BDL	2.97	0.09
Cis-1, 2-Dichloroethene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None
Ethyl Benzene (mg/l)	NA	ND	BDL	NA	ND	BDL	580	50
Methyl-tert-butyl-Ether (MTBE) (mg/l)	NA	ND	BDL	NA	ND	BDL	None	50
Methylene Chloride mg/l)	NA	ND	BDL	NA	ND	BDL	48	50
Naphthalene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None
Tetrachloroethene (mg/l)	ND<0.002	BMQL	BDL	ND<0.002	ND	BDL	0.088	3.82
Toluene (mg/l)	NA	ND	BDL	NA	ND	BDL	4,000	50
1, 2, 3-Trichlorobenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None
1, 2, 4-Trichlorobenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None
1, 1, 1-Trichloroethane (mg/l)	ND<0.002	ND	BDL	ND<0.002	ND	BDL	62	50
Trichloroethene (mg/l)	ND<0.002	ND	BDL	ND<0.002	ND	BDL	2.34	0.54
Trichlorofluoromethane (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None
1, 2, 4-Trimethylbenzene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	None
M&P-Xylenes (mg/l)	NA	ND	BDL	NA	ND	BDL	None	50
O-Xylene (mg/l)	NA	ND	BDL	NA	ND	BDL	None	50
Vinyl Chloride (mg/l)	NA	ND	BDL	NA	ND	BDL	15.75	6.1

Legend:

NA = Not Analyzed

BDL = Below Detection Limit

BMQL = Below Method Quantitation Limit

ND = Not Detected

Bold/shaded results - Exceeded SWPC

Notes:

1. Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSA
2. SWPC for hexavalent chromium.
3. Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSA

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Associates, Inc.

TABLE 4
SUMMARY OF SOIL SAMPLING RESULTS FOR AOC-B

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample Number MW-103 (10'-12')	Residential DEC ¹ (mg/kg)	Industrial / Commer- cial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
TCLP Arsenic (mg/l)	BDL	10	10	0.5
TCLP Barium (mg/l)	0.538	4,700	140,000	10.0
TCLP Cadmium (mg/l)	0.032	34	1,000	0.05
TCLP Chromium (total) (mg/l)	0.017	100 ²	100 ²	0.5
TCLP Copper (mg/l)	8.15	2,500	76,000	13.0
TCLP Lead (mg/l)	0.100	500	1,000	0.15
TCLP Mercury (mg/l)	BDL	20	610	0.2
TCLP Nickel (mg/l)	BDL	1,400	7,500	1.0
TCLP Selenium (mg/l)	BDL	340	10,000	0.5
TCLP Silver (mg/l)	BDL	340	10,000	0.36
TCLP Zinc (mg/l)	2.84	20,000	610,000	50.0
Volatile Organic Compounds	ND	Varies	Varies	Varies

Legend:

BDL = Below Detection Limit

ND = Not Detected. All EPA Method 8260 VOCs, Detection Limits ranged from 5 µg/mg to 125 µg/mg.

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

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Associates, Inc.

TABLE 5
SUMMARY OF GROUNDWATER RESULTS FOR AOC-B

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
Arsenic (mg/l)	ND<0.005	ND<0.005	0.004	None
Barium (mg/l)	0.036	0.26	None	None
Cadmium (mg/l)	ND<0.004	ND<0.005	0.006	None
Chromium, Total (mg/l)	0.005	ND<0.02	0.11 ²	None
Copper (mg/l)	0.022	ND<0.01	0.048	None
Lead (mg/l)	0.015	ND<0.005	0.013	None
Mercury (mg/l)	ND<0.0002	ND<0.0002	0.0004	None
Nickel (mg/l)	ND<0.054	ND<0.02	0.880	None
Selenium (mg/l)	ND<0.005	ND<0.005	0.050	None
Silver (mg/l)	0.032	ND<0.01	0.012	None
Zinc (mg/l)	ND<0.02	0.066	0.123	None
Fluoride (mg/l)	ND<0.04	ND<0.20	None	None
Cyanide (Total) (mg/l)	ND<0.01	ND<0.01	0.052	None
Cyanide (Amenable) (mg/l)	NA	ND<0.01	None	None
Ammonia	NA	NA	None	None
pH	NA	NA	None	None
Acetone (mg/l)	ND	0.0094	None	50
Carbon Disulfide (mg/l)	ND	BDL	None	None
Chlorobenzene (mg/l)	ND	BDL	420	6.15
Chloroform (mg/l)	ND	BDL	141	0.71
Chloromethane (mg/l)	ND	BDL	None	None
2-Chlorotoluene (mg/l)	ND	BDL	None	None
1,2-Dichlorobenzene (mg/l)	ND	BDL	170	50
1,3-Dichlorobenzene (mg/l)	ND	BDL	26	50
1,4-Dichlorobenzene (mg/l)	ND	BDL	26	50

TABLE 5
SUMMARY OF GROUNDWATER RESULTS FOR AOC-B

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
1,1-Dichloroethane (mg/l)	ND	BDL	None	50
1,2-Dichloroethane (mg/l)	ND	BDL	2.97	0.09
Cis-1,2-Dichloroethene (mg/l)	ND	BDL	None	None
Ethyl Benzene (mg/l)	ND	BDL	580	50
Methyl-tert-butyl-Ether (MTBE) (mg/l)	BMQL	BDL	None	50
Methylene Chloride (mg/l)	ND	BDL	48	50
Naphthalene (mg/l)	ND	BDL	None	None
Tetrachloroethene (mg/l)	ND	BDL	0.088	3.82
Toluene (mg/l)	ND	BDL	4,000	50
1,2,3-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,2,4-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,1,1-Trichloroethane (mg/l)	ND	BDL	62	50
Trichloroethene (mg/l)	ND	BDL	2.34	0.54
Trichlorofluoromethane (mg/l)	ND	BDL	None	None
1,2,4-Trimethylbenzene (mg/l)	ND	BDL	None	None
M&P-Xylenes (mg/l)	ND	BDL	None	50
O-Xylene (mg/l)	ND	BDL	None	50
Vinyl Chloride (mg/l)	ND	BDL	15.75	6.1

Legend:

NA = Not Analyzed
BDL = Below Detection Limit
BMQL = Below Method Quantitation Limit
ND = Not Detected
Bold/shaded results - Exceeded SWPC

Notes:

1. Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSA
2. SWPC for hexavalent chromium.
3. Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSA

TABLE 6

SUMMARY OF SOIL SAMPLING RESULTS FOR AOC-D AND AOC-F

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample ID (sample depth) MW-105 (15'-17')	Residential DEC ¹ (mg/kg)	Industrial / Commercial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
TCLP Arsenic (mg/l)	BDL	10	10	0.5
TCLP Barium (mg/l)	0.313	4,700	140,000	10.0
TCLP Cadmium (mg/l)	BDL	34	1,000	0.05
TCLP Chromium (total) (mg/l)	0.057	100 ²	100 ²	0.5
TCLP Copper (mg/l)	BDL	2,500	76,000	13.0
TCLP Lead (mg/l)	0.028	500	1,000	0.15
TCLP Mercury (mg/l)	BDL	20	610	0.2
TCLP Nickel (mg/l)	BDL	1,400	7,500	1.0
TCLP Selenium (mg/l)	BDL	340	10,000	0.5
TCLP Silver (mg/l)	BDL	340	10,000	0.36
TCLP Zinc (mg/l)	0.134	20,000	610,000	50.0
Volatile Organic Compounds	ND	Varies	Varies	Varies

Legend:

BDL = Below Detection Limit

ND = Not Detected. All EPA Method 8260 VOCs, Detection Limits ranged from 5 µg/mg to 125 µg/mg.

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

TABLE 7
SUMMARY OF GROUNDWATER RESULTS FOR AOC-D AND AOC F
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date				SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	MW-104		MW-105			
	3/95	2/01	3/95	2/01		
Arsenic (mg/l)	BDL	NS	BDL	BDL	0.004	None
Barium (mg/l)	BDL	NS	0.465	0.20	None	None
Cadmium (mg/l)	BDL	NS	BDL	BDL	0.006	None
Chromium, Total (mg/l)	0.005	NS	BDL	BDL	0.11 ²	None
Copper (mg/l)	0.027	NS	0.020	BDL	0.048	None
Lead (mg/l)	BDL	NS	BLD	BDL	0.013	None
Mercury (mg/l)	BDL	NS	BDL	BDL	0.0004	None
Nickel (mg/l)	BDL	NS	BDL	BDL	0.880	None
Selenium (mg/l)	BDL	NS	BDL	BDL	0.050	None
Silver (mg/l)	BDL	NS	BDL	BDL	0.012	None
Zinc (mg/l)	0.032	NS	BDL	0.059	0.123	None
Fluoride (mg/l)	ND<0.04	NS	0.27	ND<0.20	None	None
Cyanide (Total) (mg/l)	0.13	NS	ND<0.01	ND<0.01	0.052	None
Cyanide (Amenable) (mg/l)	ND<0.01	NS	NA	ND<0.01	None	None
Acetone (mg/l)	0.038	NS	ND	0.007	None	50
Carbon Disulfide (mg/l)	ND	NS	ND	NA	None	None
Chlorobenzene (mg/l)	ND	NS	ND	BDL	420	6.15
Chloroform (mg/l)	ND	NS	BMQL	0.00074	141	0.71
Chloromethane (mg/l)	ND	NS	ND	BLD	None	None
2-Chlorotoluene (mg/l)	ND	NS	ND	BDL	None	None
1,2-Dichlorobenzene (mg/l)	ND	NS	ND	BDL	170	50
1,3-Dichlorobenzene (mg/l)	ND	NS	ND	BDL	26	50
1,4-Dichlorobenzene (mg/l)	ND	NS	ND	BDL	26	50
1,1-Dichloroethane (mg/l)	ND	NS	ND	BDL	None	50
1,2-Dichloroethane (mg/l)	ND	NS	ND	BDL	2.97	0.09

TABLE 7
SUMMARY OF GROUNDWATER RESULTS FOR AOC-D AND AOC F

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date				SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	MW-104		MW-105			
	3/95	2/01	3/95	2/01		
Cis-1,2-Dichloroethene (mg/l)	ND	NS	ND	BDL	None	None
Ethyl Benzene (mg/l)	ND	NS	ND	BDL	580	50
Methyl-tert-butyl-Ether (MTBE) (mg/l)	0.007	NS	ND	BDL	None	50
Methylene Chloride mg/l)	ND	NS	ND	0.0015	48	50
Naphthalene (mg/l)	ND	NS	ND	BDL	None	None
Tetrachloroethene (mg/l)	ND	NS	0.017	0.0082	0.088	3.82
Toluene (mg/l)	ND	NS	ND	BDL	4,000	50
1,2,3-Trichlorobenzene (mg/l)	ND	NS	ND	BDL	None	None
1,2,4-Trichlorobenzene (mg/l)	ND	NS	ND	BLD	None	None
1,1,1-Trichloroethane (mg/l)	ND	NS	BMQL	BDL	62	50
Trichloroethene (mg/l)	ND	NS	ND	BDL	2.34	0.54
Trichlorofluoromethane (mg/l)	ND	NS	0.011	0.0053	None	None
1,2,4-Trimethylbenzene (mg/l)	ND	NS	ND	BDL	None	None
M&P-Xylenes (mg/l)	ND	NS	ND	BDL	None	50
O-Xylene (mg/l)	ND	NS	ND	BDL	None	50
Vinyl Chloride	ND	NS	ND	BDL	15.75	6.1

Legend:

NS = Not Sampled
NA = Not Analyzed
BDL = Below Detection Limit
BMQL = Below Method Quantitation Limit
ND = Not Detected

Bold/shaded results - Exceeded SWPC

Notes:

1. Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSEA
2. SWPC for hexavalent chromium.
3. Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSEA

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TABLE 8

SUMMARY OF SOIL SAMPLING RESULTS FOR AOC-E

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample ID (sample depth)					Residential DEC ¹ (mg/kg)	Industrial/ Commercial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
	MW-108 (10-12')	MW-109 (0-2')	MW-109 (25-27')	B-2 (10-12')	B-3 (5-7')			
TCLP Arsenic (mg/l)	BDL	BDL	BDL	BDL	BDL	10	10	0.5
TCLP Barium (mg/l)	0.785	0.439	0.323	0.655	0.341	4,700	140,000	10.0
TCLP Cadmium (mg/l)	0.015	0.013	BDL	0.018	0.011	34	1,000	0.05
TCLP Chromium (total) (mg/l)	0.642	0.132	0.154	0.155	0.036	100 ²	100 ²	0.5
TCLP Copper (mg/l)	3.36	1.39	0.905	9.12	0.508	2,500	76,000	13.0
TCLP Lead (mg/l)	0.378	0.052	0.064	0.194	0.056	500	1,000	0.15
TCLP Mercury (mg/l)	BDL	BDL	BDL	BDL	BDL	20	610	0.2
TCLP Nickel (mg/l)	0.817	0.142	BDL	1.71	BDL	1,400	7,500	1.0
TCLP Selenium (mg/l)	BDL	BDL	BDL	BDL	BDL	340	10,000	0.5
TCLP Silver (mg/l)	BDL	BDL	BDL	BDL	BDL	340	10,000	0.36
TCLP Zinc (mg/l)	3.29	0.456	0.198	1.82	0.215	20,000	610,000	50.0
Volatile Organic Compounds	ND	ND	ND	ND	ND	Varies	Varies	Varies

Legend:

BDL = Below Detection Limit

ND = Not Detected. All EPA Method 8260 VOCs, Detection Limits ranged from 5 µg/mg to 125 µg/mg.

Bold/shaded results - Exceeded GB PMC

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

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TABLE 9
SUMMARY OF GROUNDWATER RESULTS FOR AOCE
MacDermid, Inc.
526 Huntington Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date										SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	MW-107		MW-106		MW-109		MW-108		MW-110			
	3/95		3/95		3/95	2/01	3/95	2/01	3/95	2/01		
Arsenic (mg/l)	0.069	0.036	0.059	0.015	BDL	BDL	BDL	BDL	0.058	BDL	0.004	None
Barium (mg/l)	0.020	0.006	0.015	0.016	BDL	BDL	0.16	0.16	0.021	0.15	None	None
Cadmium (mg/l)	0.014	BDL	0.032	BDL	BDL	BDL	BDL	BDL	0.037	0.083	0.006	None
Chromium, Total (mg/l)	0.200	0.014	0.914	0.026	BDL	BDL	0.007	BDL	0.500	0.086	0.112	None
Copper (mg/l)	162	8.88	239	4.1	BDL	BDL	1.14	0.38	146	13	0.048	None
Lead (mg/l)	0.055	0.013	0.014	BDL	BDL	BDL	BDL	BDL	0.016	BDL	0.013	None
Mercury (mg/l)	0.0015	0.0011	0.0005	0.008	BDL	BDL	BDL	BDL	0.0012	0.001	0.0004	None
Nickel (mg/l)	0.412	0.342	1.14	0.85	BDL	BDL	0.408	0.24	0.846	1.5	0.880	None
Selenium (mg/l)	0.094	0.056	0.056	BDL	BDL	BDL	0.01	BDL	BDL	BDL	0.050	None
Silver (mg/l)	0.055	0.010	0.026	BDL	BDL	BDL	0.026	BDL	0.028	0.043	0.012	None
Zinc (mg/l)	7.75	0.026	16.5	0.064	BDL	BDL	BDL	0.048	6.26	2.9	0.123	None
Fluoride (mg/l)	10.0	4.1	6.4	0.66	1.50	2.6			8.4	0.60	None	None
Cyanide (Total) (mg/l)	0.07	0.35	0.28	0.064	ND	BDL			0.60	0.012	0.052	None
Cyanide (Amenable) (mg/l)	ND	ND	ND	0.012	NA	BDL			0.1	BDL	None	None
Acetone (mg/l)	0.14	0.11	0.18	0.23	ND	0.0079			0.14	0.045	None	50
Carbon Disulfide (mg/l)	BMQL	ND	0.0022	NA	ND	NA			BMQL	NA	None	None
Chlorobenzene (mg/l)	BMQL	ND	0.003	0.00059	0.012	0.0083			0.003	BDL	420	6.15
Chloroform (mg/l)	0.0032	0.0041	0.0034	0.00092	BMQL	BDL			0.0055	0.0057	141	0.71
Chloroethane (mg/l)	ND	ND	ND	BDL	ND	0.001			ND	BDL	None	None
Chloromethane (mg/l)	0.0042	0.0052	0.0065	BDL	ND	BDL			0.005	0.00088	None	None
2-Chlorotoluene (mg/l)	ND	0.002	BMQL	0.00074	ND	BDL			BMQL	BDL	None	None
1,2-Dichlorobenzene (mg/l)	0.0075	0.003	0.086	0.055	0.057	0.0012			0.011	0.00053	170	50
1,3-Dichlorobenzene (mg/l)	BMQL	BMQL	0.0025	BDL	0.0013	0.0098			BMQL	BDL	26	50
1,4-Dichlorobenzene (mg/l)	0.0021	0.0011	0.0012	0.00091	0.010	0.002			0.0028	BDL	26	50
1,1-Dichloroethane (mg/l)	ND	ND	BMQL	BDL	0.0038	0.0086			0.0012	BDL	None	50
1,2-Dichloroethane (mg/l)	ND	0.002	0.0015	0.0057	ND	BDL			0.0012	0.0014	2.97	0.09

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TABLE 9
SUMMARY OF GROUNDWATER RESULTS FOR AOC-E
MacDermid, Inc.
526 Huntington Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date										SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	MW-107	MW-106	MW-109		MW-108		MW-110					
	3/95	3/95	3/95	2/01	3/95	2/01	3/95	2/01	2/01			
Trans-1,2-dichloroethene (mg/l)	ND	ND	ND	0.00099	ND	BDL	BDL	ND	BDL	BDL	None	None
Cis-1,2-Dichloroethene (mg/l)	ND	0.0011	BMQL	BDL	0.0016	0.0037	BMQL	BDL	BDL	BDL	None	None
Ethyl Benzene (mg/l)	ND	ND	ND	BDL	BMQL	BDL	BDL	ND	BDL	BDL	580	50
p-Isopropyltoluene (mg/l)	ND	ND	ND	BDL	ND	0.00051	ND	ND	BDL	BDL	None	None
4-Methyl-2-Pentanone (mg/l)	ND	ND	ND	0.0077	ND	BDL	ND	ND	BDL	BDL	None	None
Methyl-tert-butyl-Ether (MTBE) (mg/l)	ND	BMQL	0.0024	BDL	0.0018	BDL	0.0044	BDL	BDL	BDL	None	50
Methylene Chloride mg/l)	0.0057	0.038	0.0084	0.00099	ND	0.0054	0.0085	BDL	BDL	BDL	48	50
Naphthalene (mg/l)	0.001	ND	0.0021	0.00056	0.0024	0.0012	ND	BDL	BDL	BDL	None	None
Tetrachloroethene (mg/l)	0.002	0.0015	0.0039	0.0047	0.0093	0.016	0.012	BDL	BDL	BDL	0.088	3.82
Toluene (mg/l)	ND	0.001	BMQL	BDL	BMQL	BDL	0.0012	0.093	BDL	BDL	4,000	50
1,2,3-Trichlorobenzene (mg/l)	0.0029	0.0049	0.0014	BDL	ND	BDL	BMQL	BDL	BDL	BDL	None	None
1,2,4-Trichlorobenzene (mg/l)	0.016	0.0018	0.017	0.033	0.0039	0.0024	0.014	0.005	0.005	0.005	None	None
1,1,1-Trichloroethane (mg/l)	ND	ND	BMQL	0.00055	0.004	0.0019	BMQL	0.00069	62	62	50	50
Trichloroethene (mg/l)	BMQL	0.0033	BMQL	BDL	0.001	0.00092	BMQL	BDL	BDL	BDL	2.34	0.54
Trichlorofluoromethane (mg/l)	ND	ND	ND	BDL	ND	BDL	ND	BDL	BDL	BDL	None	None
1,2,4-Trimethylbenzene (mg/l)	BMQL	ND	BMQL	BDL	BMQL	0.001	ND	BDL	BDL	BDL	None	None
M&P-Xylenes (mg/l)	BMQL	ND	BMQL	BDL	0.002	BDL	BMQL	BDL	BDL	BDL	None	50
O-Xylene (mg/l)	ND	ND	ND	BDL	0.0023	0.0027	ND	BDL	BDL	BDL	None	50
Vinyl Chloride	ND	ND	ND	BDL	ND	0.0024	ND	BDL	BDL	BDL	15.75	6.1

Legend:

NA = Not Analyzed

BDL = Below Detection Limit

BMQL = Below Method Quantitation Limit

ND = Not Detected

Bold/shaded results - Exceeded SWPC

Notes:

1. Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSEA
2. SWPC for hexavalent chromium.
3. Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSEA

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TABLE 10
SUMMARY OF TEST PIT RESULTS FOR AOC-G

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Test Pit Number (depth)							Residential DEC ² (mg/kg)	Industrial/ Commercial DEC ² (mg/kg)	GB PMC ⁴ (mg/l)
	TP-1 (12-13.5')	TP-2 (2')	TP-2 (9'-11')	TP-3 (6'-8')	TP-4 (4')	TP-4 (7'-8')	TP-5 (8-11')			
Arsenic (mg/l) ¹	NA	ND<0.1	NA	NA	ND<0.1	NA	NA	10	10	0.5
Barium (mg/l) ¹	NA	1.30	NA	NA	ND<0.1	NA	NA	4,700	140,000	10.0
Cadmium (mg/l) ¹	NA	0.08	NA	NA	0.06	NA	NA	34	1,000	0.05
Chromium (total) (mg/l) ¹	NA	0.055	NA	NA	ND<0.1	NA	NA	100 ³	100 ³	0.5
Lead (mg/l) ¹	NA	5.96	NA	NA	ND<0.1	NA	NA	500	1,000	0.15
Mercury (mg/l) ¹	NA	ND<0.1	NA	NA	ND<0.1	NA	NA	20	610	0.02
Selenium (mg/l) ¹	NA	ND<0.1	NA	NA	ND<0.1	NA	NA	340	10,000	0.5
Silver (mg/l) ¹	NA	ND<0.1	NA	NA	ND<0.1	NA	NA	340	10,000	0.36
Copper (mg/l) ¹	NA	6.15	NA	NA	0.138	NA	NA	2,500	76,000	13.0
Nickel (mg/l) ¹	NA	6.67	NA	NA	0.576	NA	NA	1,400	7,500	1.0
Tin (mg/l) ¹	NA	ND<0.1	NA	NA	ND<0.1	NA	NA	None	None	None
Zinc (mg/l) ¹	NA	5.69	NA	NA	0.239	NA	NA	20,000	610,000	50.0
PCBs (mg/kg)	ND	ND	ND	ND	ND	ND	ND	1	10	0.005
Aromatics (mg/kg)	ND	ND	ND	ND	ND	ND	ND	Varies	Varies	Varies
Halogenated Organics (mg/kg)	ND	ND	ND	ND	ND	ND	0.013 ⁵	12	110	1

NA = Not Analyzed. ND = Not Detected. **Bold/Shaded** results - Exceeded SWPC

Legend: 1. EP Toxicity Testing Results

2. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).

3. DEC standard for hexavalent chromium.

4. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

5. Mass concentration for tetrachloroethylene. The remaining halogenated solvents were below laboratory detection limits.

TABLE 11

SUMMARY OF SOIL SAMPLING RESULTS FOR AOC-G

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample ID (sample depth) MW-111 (0.5'-2.5')	Residential DEC ¹ (mg/kg)	Industrial / Commercial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
TCLP Arsenic (mg/l)	BDL	10	10	0.5
TCLP Barium (mg/l)	0.324	4,700	140,000	10.0
TCLP Cadmium (mg/l)	BDL	34	1,000	0.05
TCLP Chromium (total) (mg/l)	0.026	100 ²	100 ²	0.5
TCLP Copper (mg/l)	0.149	2,500	76,000	13.0
TCLP Lead (mg/l)	0.196	500	1,000	0.15
TCLP Mercury (mg/l)	BDL	20	610	0.2
TCLP Nickel (mg/l)	BDL	1,400	7,500	1.0
TCLP Selenium (mg/l)	BDL	340	10,000	0.5
TCLP Silver (mg/l)	BDL	340	10,000	0.36
TCLP Zinc (mg/l)	0.131	20,000	610,000	50.0
Volatile Organic Compounds	ND	Varies	Varies	Varies

Legend:

BDL = Below Detection Limit

ND = Not Detected. All EPA Method 8260 VOCs, Detection Limits ranged from 5 µg/mg to 125 µg/mg.

Bold/shaded results - Exceeded SWPC

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

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TABLE 12
SUMMARY OF GROUNDWATER RESULTS FOR AOC-G

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
Arsenic (mg/l)	ND<0.005	ND<0.005	0.004	None
Barium (mg/l)	0.067	0.42	None	None
Cadmium (mg/l)	ND<0.004	ND<0.005	0.006	None
Chromium, Total (mg/l)	0.005	ND<0.02	0.11 ²	None
Copper (mg/l)	ND<0.020	0.014	0.048	None
Lead (mg/l)	ND<0.003	ND<0.005	0.013	None
Mercury (mg/l)	ND<0.0002	ND<0.0002	0.0004	None
Nickel (mg/l)	ND<0.054	ND<0.02	0.880	None
Selenium (mg/l)	ND<0.005	ND<0.005	0.050	None
Silver (mg/l)	ND<0.007	ND<0.01	0.012	None
Zinc (mg/l)	ND<0.02	0.15	0.123	None
Fluoride (mg/l)	0.04	ND<0.20	None	None
Cyanide (Total) (mg/l)	ND<0.01	ND<0.01	0.052	None
Cyanide (Amenable) (mg/l)	NA	ND<0.01	None	None
Ammonia	NA	NA	None	None
pH	NA	NA	None	None
Acetone (mg/l)	ND	0.011	None	50
Carbon Disulfide (mg/l)	ND	BDL	None	None
Chlorobenzene (mg/l)	ND	BDL	420	6.15
Chloroform (mg/l)	ND	BDL	141	0.71
Chloromethane (mg/l)	ND	BDL	None	None
2-Chlorotoluene (mg/l)	ND	BDL	None	None
1,2-Dichlorobenzene (mg/l)	ND	BDL	170	50
1,3-Dichlorobenzene (mg/l)	ND	BDL	26	50
1,4-Dichlorobenzene (mg/l)	ND	BDL	26	50

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TABLE 12
SUMMARY OF GROUNDWATER RESULTS FOR AOC-G

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
1,1-Dichloroethane (mg/l)	0.074	0.042	None	50
1,2-Dichloroethane (mg/l)	0.004	0.017	2.97	0.09
Cis-1,2-Dichloroethene (mg/l)	BMQL	0.0012	None	None
Ethyl Benzene (mg/l)	ND	BDL	580	50
Methyl-tert-butyl-Ether (MTBE) (mg/l)	ND	BDL	None	50
Methylene Chloride (mg/l)	ND	BDL	48	50
Naphthalene (mg/l)	ND	BDL	None	None
Tetrachloroethene (mg/l)	0.006	0.0094	0.088	3.82
Toluene (mg/l)	ND	BDL	4,000	50
1,2,3-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,2,4-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,1,1-Trichloroethane (mg/l)	0.0042	0.0019	62	50
Trichloroethene (mg/l)	BMQL	0.00084	2.34	0.54
Trichlorofluoromethane (mg/l)	ND	BDL	None	None
1,2,4-Trimethylbenzene (mg/l)	ND	BDL	None	None
M&P-Xylenes (mg/l)	ND	BDL	None	50
O-Xylene (mg/l)	ND	BDL	None	50
Vinyl Chloride (mg/l)	ND	0.00075	15.75	6.1

Legend:

NA = Not Analyzed
BDL = Below Detection Limit
BMQL = Below Method Quantitation Limit
ND = Not Detected
Bold/shaded results - Exceeded SWPC

Notes:

4. Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSEA
5. SWPC for hexavalent chromium.
6. Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSEA

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TABLE 13
SUMMARY OF SOIL SAMPLING RESULTS FOR AOC-H

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample Number MW-112 (0.5'-2.5')	Residential DEC ¹ (mg/kg)	Industrial / Commer- cial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
TCLP Arsenic (mg/l)	BDL	10	10	0.5
TCLP Barium (mg/l)	0.714	4,700	140,000	10.0
TCLP Cadmium (mg/l)	BDL	34	1,000	0.05
TCLP Chromium (total) (mg/l)	0.038	100 ²	100 ²	0.5
TCLP Copper (mg/l)	1.04	2,500	76,000	13.0
TCLP Lead (mg/l)	1.08	500	1,000	0.15
TCLP Mercury (mg/l)	BDL	120	610	0.2
TCLP Nickel (mg/l)	0.052	1,400	7,500	1.0
TCLP Selenium (mg/l)	BDL	340	10,000	0.5
TCLP Silver (mg/l)	BDL	340	10,000	0.36
TCLP Zinc (mg/l)	0.351	20,000	610,000	50.0
Acetone (mg/kg) ⁴	0.170	500	1,000	140.0
Cis-1,2-Dichloroethene (mg/kg) ⁴	0.087	500	1,000	14.0 ⁵
Vinyl Chloride (mg/kg) ⁴	0.027	0.32	3.0	0.40 ⁵

Legend: BDL = Below Detection Limit

Bold/shaded results - Exceeded SWPC

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.
4. All other EPA Method 8260 VOCs were below laboratory detection limits, Detection Limits ranged from 5 µg/mg to 125 µg/mg.
5. Units are in mg/kg.

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TABLE 14
SUMMARY OF GROUNDWATER RESULTS FOR AOC-H
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
Arsenic (mg/l)	BDL	NS	0.004	None
Barium (mg/l)	BDL	BDL	None	None
Cadmium (mg/l)	0.045	0.027	0.006	None
Chromium, Total (mg/l)	0.029	BDL	0.11 ²	None
Copper (mg/l)	0.026	BDL	0.048	None
Lead (mg/l)	BDL	BDL	0.013	None
Mercury (mg/l)	BDL	BDL	0.0004	None
Nickel (mg/l)	0.013	BDL	0.880	None
Selenium (mg/l)	BDL	BDL	0.050	None
Silver (mg/l)	BDL	BDL	0.012	None
Zinc (mg/l)	BDL	0.16	0.123	None
Fluoride (mg/l)	ND<0.04	0.20	None	None
Cyanide (Total) (mg/l)	ND<0.01	BDL	0.052	None
Cyanide (Amenable) (mg/l)	NA	BDL	None	None
Acetone (mg/l)	ND	BDL	None	50
Carbon Disulfide (mg/l)	ND	BDL	None	None
Chlorobenzene (mg/l)	ND	BDL	420	6.15
Chloroform (mg/l)	ND	BDL	141	0.71
Chloromethane (mg/l)	ND	BDL	None	None
2-Chlorotoluene (mg/l)	ND	BDL	None	None
1,2-Dichlorobenzene (mg/l)	ND	BDL	170	50
1,3-Dichlorobenzene (mg/l)	ND	BDL	26	50
1,4-Dichlorobenzene (mg/l)	ND	BDL	26	50
1,1-Dichloroethane (mg/l)	ND	BDL	None	50
1,2-Dichloroethane (mg/l)	ND	BDL	2.97	0.09
Cis-1,2-Dichloroethene (mg/l)	0.0028	BDL	None	None

TABLE 14
SUMMARY OF GROUNDWATER RESULTS FOR AOC-H
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
Ethyl Benzene (mg/l)	ND	BDL	580	50
Methyl-tert-butyl-Ether (MTBE) (mg/l)	ND	BDL	None	50
Methylene Chloride (mg/l)	ND	BDL	48	50
Naphthalene (mg/l)	ND	BDL	None	None
Tetrachloroethene (mg/l)	ND	0.003	0.088	3.82
Toluene (mg/l)	ND	BDL	4,000	50
1,2,3-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,2,4-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,1,1-Trichloroethane (mg/l)	ND	BDL	62	50
Trichloroethene (mg/l)	0.0018	0.00081	2.34	0.54
Trichlorofluoromethane (mg/l)	ND	BDL	None	None
1,2,4-Trimethylbenzene (mg/l)	ND	BDL	None	None
M&P-Xylenes (mg/l)	ND	BDL	None	50
O-Xylene (mg/l)	ND	BDL	None	50
Vinyl Chloride	ND	BDL	15.75	6.1

Legend:

NS = Not Sampled

NA = Not Analyzed

BDL = Below Detection Limit

BMQL = Below Method Quantitation Limit

ND = Not Detected

Bold/shaded results -- Exceeded SWPC

Notes:

4. Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSA
5. SWPC for hexavalent chromium.
6. Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSA

HRP

Associates, Inc.

TABLE 15
SUMMARY OF 1987 SOIL SAMPLING RESULTS FOR INK SPILL AREA (AOC-I)

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample ID (sample depth)					Residential DEC ¹ (mg/kg)	Industrial/ Commercial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
	1 (2.5') ND<0.01	2 (1.5-2.5') ND<0.01	3 (2.5'-3.0') ND<0.01	4 (unknown') NA	5 (unknown) NA			
EP Tox. Arsenic (mg/l)	ND<0.01	ND<0.01	ND<0.01	NA	NA	10	10	0.5
EP Tox. Barium (mg/l)	0.21	0.40	0.20	NA	NA	4,700	140,000	10.0
EP Tox. Cadmium (mg/l)	ND<0.01	ND<0.01	ND<0.01	NA	NA	34	1,000	0.05
EP Tox. Chromium (total) (mg/l)	ND<0.05	ND<0.05	ND<0.05	NA	NA	100 ²	100 ²	0.5
EP Tox. Lead (mg/l)	ND<0.05	0.10	ND<0.05	NA	NA	500	1,000	0.15
EP Tox. Mercury (mg/l)	ND<0.001	ND<0.001	ND<0.001	NA	NA	20	610	0.2
EP Tox. Selenium (mg/l)	ND<0.01	ND<0.01	ND<0.01	NA	NA	340	10,000	0.5
EP Tox. Silver (mg/l)	ND<0.01	ND<0.01	ND<0.01	NA	NA	340	10,000	0.36
Total Cyanide (mg/l)	ND<0.1	ND<0.1	ND<0.01	NA	NA	1,400	41,000	2.0 ⁴
Benzene (mg/kg)	ND<0.005	14.76	ND<0.005	0.046	ND<0.005	21	200	0.2 ⁵
Ethyl Benzene (mg/kg)	ND<0.005	2.91	ND<0.005	ND<0.005	ND<0.005	500	1,000	10.1 ⁵
Tetrachloroethylene (mg/kg)	ND<0.015	0.70	ND<0.015	ND<0.015	ND<0.015	12	110	1.0 ⁵
Toluene (mg/kg)	ND<0.005	62.97	ND<0.005	ND<0.005	ND<0.005	500	1,000	67.0 ⁵
1,1,1-Trichloroethylene (mg/kg)	ND<0.015	5.0	ND<0.015	0.042	ND<0.005	500	1,000	40.0 ⁵
Xylenes (mg/kg)	ND<0.005	11.45	ND<0.005	ND<0.005	ND<0.005	500	1,000	19.5 ⁵

Legend: BDL = Below Detection Limit. NA = Not Analyzed. ND = Not Detected. All EPA Method 8260 VOCs, Detection Limits ranged from 5 µg/mg to 125 µg/mg.

Sample 1: Collected beneath ink/soil layer (prior to excavation).

Sample 2: Collected in ink/soil layer (prior to excavation).

Sample 3: Collected from bottom of excavation.

Sample 4: Collected from eastern side wall of excavation.

Sample 5: Collected from western side wall of excavation.

Notes:

1. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
2. DEC standard for hexavalent chromium.
3. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.
4. By SPLP only.
5. Units are in mg/kg.

MRP

Associates, Inc.

TABLE 16
SUMMARY OF GROUNDWATER RESULTS FOR AOCS-I, J, K, AND L
MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
Arsenic (mg/l)	ND<0.005	ND<0.005	0.004	None
Barium (mg/l)	0.089	0.44	None	None
Cadmium (mg/l)	ND<0.004	ND<0.005	0.006	None
Chromium, Total (mg/l)	ND<0.005	ND<0.02	0.11 ²	None
Copper (mg/l)	ND<0.022	ND<0.01	0.048	None
Lead (mg/l)	ND<0.003	ND<0.005	0.013	None
Mercury (mg/l)	ND<0.0002	ND<0.0002	0.0004	None
Nickel (mg/l)	ND<0.054	ND<0.02	0.880	None
Selenium (mg/l)	0.006	ND<0.005	0.050	None
Silver (mg/l)	ND<0.007	ND<0.01	0.012	None
Zinc (mg/l)	ND<0.02	0.16	0.123	None
Fluoride (mg/l)	ND<0.04	ND<0.20	None	None
Cyanide (Total) (mg/l)	ND<0.01	ND<0.01	0.052	None
Cyanide (Amenable) (mg/l)	NA	ND<0.01	None	None
Ammonia	NA	NA	None	None
pH	NA	NA	None	None
Acetone (mg/l)	ND	0.014	None	50
Carbon Disulfide (mg/l)	ND	BDL	None	None
Chlorobenzene (mg/l)	ND	BDL	420	6.15
Chloroform (mg/l)	ND	BDL	141	0.71
Chloromethane (mg/l)	ND	BDL	None	None
Chlorotoluene (mg/l)	ND	BDL	None	None
1,2-Dichlorobenzene (mg/l)	ND	BDL	170	50
1,3-Dichlorobenzene (mg/l)	ND	BDL	26	50
1,4-Dichlorobenzene (mg/l)	ND	BDL	26	50

Associates, Inc.

TABLE 16
SUMMARY OF GROUNDWATER RESULTS FOR AOCs-I, J, K, AND L

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Well Designation and Sampling Date		SWPC ¹ (mg/l)	Industrial/ Commercial VC ³ (mg/l)
	3/95	2/01		
1,1-Dichloroethane (mg/l)	ND	BDL	None	50
1,2-Dichloroethane (mg/l)	ND	BDL	2.97	0.09
Cis-1,2-Dichloroethene (mg/l)	ND	BDL	None	None
Ethyl Benzene (mg/l)	ND	BDL	580	50
Methyl-tert-butyl-Ether (MTBE) (mg/l)	ND	BDL	None	50
Methylene Chloride (mg/l)	ND	BDL	48	50
Naphthalene (mg/l)	ND	BDL	None	None
Tetrachloroethene (mg/l)	ND	BDL	0.088	3.82
Toluene (mg/l)	ND	BDL	4,000	50
1,2,3-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,2,4-Trichlorobenzene (mg/l)	ND	BDL	None	None
1,1,1-Trichloroethane (mg/l)	ND	BDL	62	50
Trichloroethene (mg/l)	ND	BDL	2.34	0.54
Trichlorofluoromethane (mg/l)	ND	BDL	None	None
1,2,4-Trimethylbenzene (mg/l)	ND	BDL	None	None
M&P-Xylenes (mg/l)	ND	BDL	None	50
O-Xylene (mg/l)	ND	BDL	None	50
Vinyl Chloride (mg/l)	ND	BDL	15.75	6.1

Legend:

NA = Not Analyzed

BDL = Below Detection Limit

BMQL = Below Method Quantitation Limit

ND = Not Detected

Bold/shaded results - Exceeded SWPC

Notes:

7.

Surface Water Protection Criteria for Substances in Groundwater, Appendix D, Sections 22a-133k-1 through 22a-133k-3 of RCSEA
SWPC for hexavalent chromium.

8.

Volatilization Criteria for Groundwater, Appendix E, Sections 22a-133k-1 through 22a-133k-3 of RCSEA

9.

HRP

Associates, Inc.

TABLE 17

SUMMARY OF SOIL SAMPLING RESULTS FOR AOC-K

MacDermid, Inc.
526 Huntingdon Avenue
Waterbury, CT

Constituent	Sample ID (sample depth) MW-113 (0'-2')	Residential DEC ¹ (mg/kg)	Industrial / Commercial DEC ¹ (mg/kg)	GB PMC ³ (mg/l)
TCLP Arsenic (mg/l)	BDL	10	10	0.5
TCLP Barium (mg/l)	0.324	4,700	140,000	10.0
TCLP Cadmium (mg/l)	BDL	34	1,000	0.05
TCLP Chromium (total) (mg/l)	0.026	100 ²	100 ²	0.5
TCLP Copper (mg/l)	0.149	2,500	76,000	13.0
TCLP Lead (mg/l)	0.196	500	1,000	0.15
TCLP Mercury (mg/l)	BDL	20	610	0.2
TCLP Nickel (mg/l)	BDL	1,400	7,500	1.0
TCLP Selenium (mg/l)	BDL	340	10,000	0.5
TCLP Silver (mg/l)	BDL	340	10,000	0.36
TCLP Zinc (mg/l)	0.131	20,000	610,000	50.0
Volatile Organic Compounds	ND	Varies	Varies	Varies

Legend:

BDL = Below Detection Limit

ND = Not Detected. All EPA Method 8260 VOCs, Detection Limits ranged from 5 µg/mg to 125 µg/mg.

Bold/Shaded results - Exceeded GB PMC

Notes:

4. Direct Exposure Criteria for Soils, Appendix A, Sections 22a-133k-1 through 22a-133k-3 of Regulations of Connecticut State Agencies (RCSA).
5. DEC standard for hexavalent chromium.
6. Pollutant Mobility Criteria for Soil, Appendix B, Sections 22a-133k-1 through 22a-133k-3 of RCSA.

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Associates, Inc.

**US EPA New England
RCRA Document Management System
Image Target Sheet**

RDMS Document ID # 100824

Facility Name: MACDERMID INC

Facility ID#: CTD001164599

Phase Classification: R-1B

Purpose of Target Sheet:

☒ **Oversized (in Site File)** ☐ **Oversized (in Map Drawer)**

☐ **Page(s) Missing (Please Specify Below)**

☐ **Privileged** ☐ **Other (Provide Purpose Below)**

Description of Oversized Material, if applicable:

DRAWING 2: SITE PLAN

☒ **Map** ☐ **Photograph** ☐ **Other (Specify Below)**

*** Please Contact the EPA New England RCRA Records Center to View This Document ***

**US EPA New England
RCRA Document Management System
Image Target Sheet**

RDMS Document ID # 100824

Facility Name: MACDERMID INC

Facility ID#: CTD001164599

Phase Classification: R-1B

Purpose of Target Sheet:

☒ **Oversized (in Site File)** ☐ **Oversized (in Map Drawer)**

☐ **Page(s) Missing (Please Specify Below)**

☐ **Privileged** ☐ **Other (Provide
Purpose Below)**

Description of Oversized Material, if applicable:

**FIGURE 2A: PROPERTY LINE NORTH OF HUNTINGTON
AVENUE**

☒ **Map** ☐ **Photograph** ☐ **Other (Specify Below)**

*** Please Contact the EPA New England RCRA Records Center to View This Document ***

Date: May 21, 2001
Rev. No. 1

APPENDIX E
1995 GROUNDWATER LABORATORY REPORTS

1995 GROUNDWATER DATA SUMMARY FOR VOCs, CYANIDE AND FLUORIDE

Monitoring Well	Former Monitoring Well Designation	Page
MW-103	GZ-2	1
MW-112	GZ-3	4
MW-113	GZ-5	7
MW-111	GZ-6	10
MW-105	GZ-7	13
MW-109	GZ-8	16
MW-108	GZ-9	19
MW-110	MAC-1	22
MW-107	MAC-3	25
MW-106	MAC-4	28
MW-102	MAC-5	31
MW-101	MAC-6	34
MW-104	MAC-7	37

1995 GROUNDWATER DATA SUMMARY FOR METALS

MW-110	MAC-1	40
MW-107	MAC-3	40
MW-106	MAC-4	40
MW-102	MAC-5	40
MW-101	MAC-6	41
MW-104	MAC-7	41
MW-103	GZ-2	41
MW-112	GZ-3	41
MW-113	GZ-5	42
MW-111	GZ-6	42
MW-105	GZ-7	42
MW-109	GZ-8	42
MW-108	GZ-9	43
Site Plan	Locations of Former Monitoring Well Designation	Plastic Sleeve

APPENDIX F
2001 GROUNDWATER LABORATORY REPORTS

2001 GROUNDWATER INDEX		
Monitoring Well	Former Monitoring Well Designation	Page
MW-101	MAC-6	1
MW-102	MAC-5	4
MW-103	GZ-2	7
MW-105	GZ-7	10
MW-108	GZ-9	13
MW-109	GZ-8	16
MW-109 (duplicate)	GZ-8A	19
MW-110	MAC-1	22
MW-110 (duplicate)	MAC-1A	25
MW-111	GZ-6	28
MW-112	GZ-3	31
MW-113	GZ-5	34
MW-110 (unfiltered)	MAC-1	37
MW-108 (finger printing)	GZ-9	38
Equipment Blank	---	39
Field Blank	---	42
Trip Blank	---	44
MW-108 (PCBs)	GZ-9	46
MW-108 (gas chromatographic traces and chromatograms)	GZ-9	47

Software Version	: 6.1.1.0.0:K20	Date	: 03/07/01 3:09:51 PM
Operator	: manager	Sample Name	: 01020133-17
Sample Number	: ac01826	Study	: ct-tph
AutoSampler	: BUILT-IN	Rack/Vial	: 0/4
Instrument Name	: AutosystemXL	Channel	: A
Instrument Serial #	: None	A/D mV Range	: 1000
Delay Time	: 5.00 min	End Time	: 35.99 min
Sampling Rate	: 3.1250 pts/s		
Volume Injected	: 1.000000 uL	Area Reject	: 0.000000
Sample Amount	: 1.0000	Dilution Factor	: 1.00
Internal Standard Amount	: 1.0000		
Data Acquisition Time	: 02/15/01 10:59:51 AM Cycle		: 5

Raw Data File : C:\PenExe\TcWS\Ver6.1.1\Data\ac01826d.raw
 Inst Method : c:\penexe\tcws\ver6.1.1\methods\ct-tph2 from
 C:\PenExe\TcWS\Ver6.1.1\Data\ac01826d.raw
 Proc Method : c:\penexe\tcws\ver6.1.1\methods\ct-tph2.mth
 Calib Method : c:\penexe\tcws\ver6.1.1\methods\ct-tph2.mth
 Sequence File : C:\PenExe\TcWS\Ver6.1.1\Methods\021501.seq
 Sample Notes:
 0.1009 gms/10ml oil layer only

CT - ETPH

Peak #	Time [min]	Component Name	Area [μ V·s]	Raw Amount
-	7.141	Nonane C9	0.00	0.0000
-	8.773	n-Decane C10	0.00	0.0000
1	10.331		19350.28	0.0000
-	11.808	Dodecane C12	0.00	0.0000
-	13.851	Tetradecane C14	0.00	0.0000
-	15.328	Hexadecane C16	0.00	0.0000
-	16.533	Octadecane C18	0.00	0.0000
-	17.077	n-Nonadecane	0.00	0.0000
-	17.584	Eicosane C20	0.00	0.0000
-	18.080	n-Chlorooctadecane	0.00	0.0000
-	18.192	5 alpha Androstane	0.00	0.0000
-	18.528	Docosane C22	0.00	0.0000
-	18.971	n-Tricosane (SURROGA	0.00	0.0000
2	19.408	Tetracosane C24	58154031.16	0.0000
-	20.192	Hexacosane C26	0.00	0.0000
-	21.067	Octacosane C28	0.00	0.0000
-	22.144	Triacontane C30	0.00	0.0000
-	28.149	Hexatriacontane C36	0.00	0.0000
			58173381.43	0.0000

Chromatogram

Sample Name: 01020133-17

Sample #: ac01826

Page 1 of 1

FileName: C:\PenExe\TcWS\Ver6.1.1\Data\ac01826d.raw

Date: 03/07/01 3:09:53 PM

Method: ct-lph2.mth

Time of Injection: 02/15/01 10:59:51 AM

Start: 5.00 min

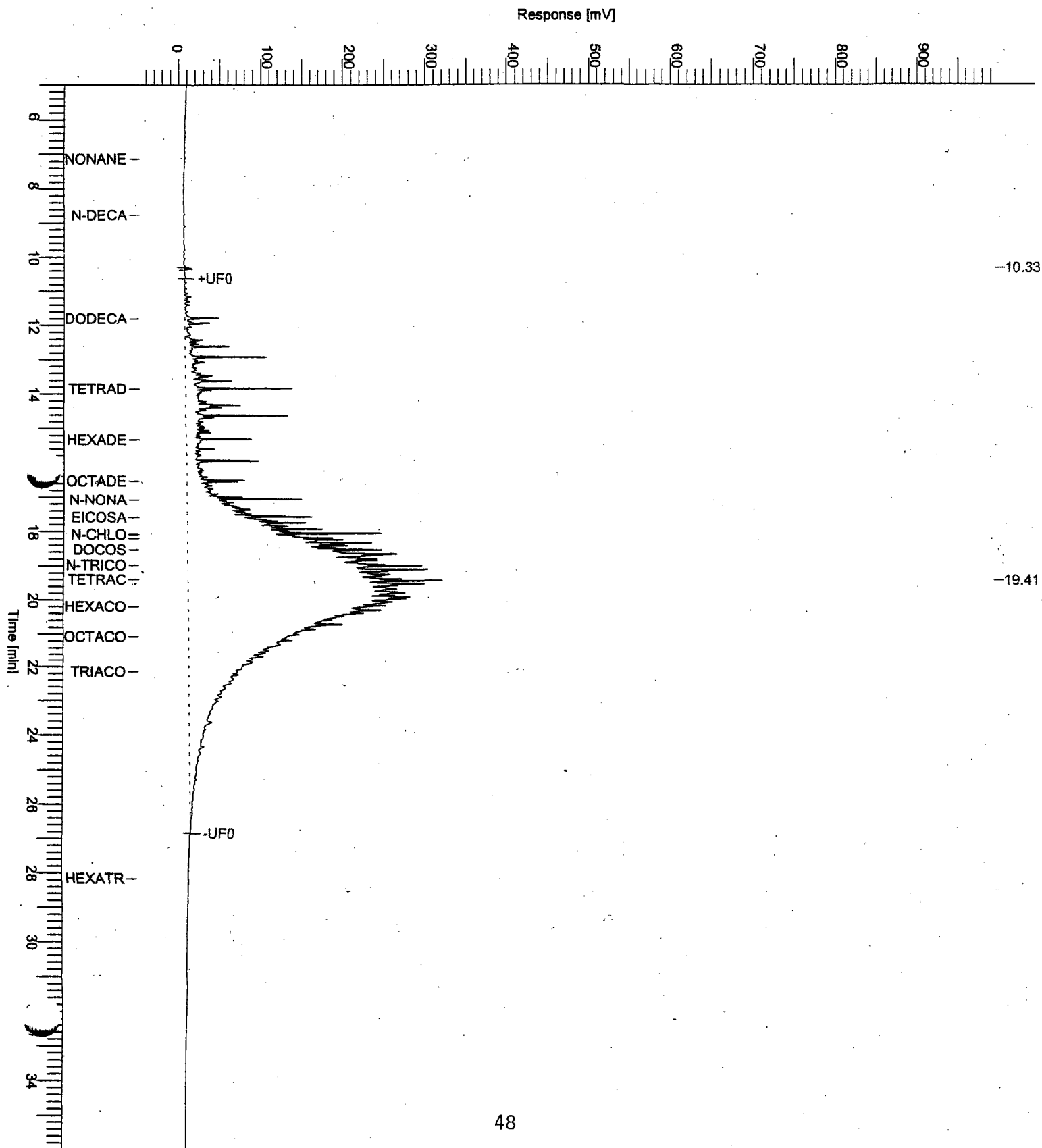
End Time: 35.99 min

Low Point: -47.80 mV

High Point: 993.88 mV

Plot: set -47.80 mV

Plot Scale: 1041.7 mV



Chromatogram

Sample Name: ~~0105d50x~~

Sample #: 0105d50x

Page 1 of 1

FileName : C:\PenExe\TcWS\Ver6.1.1\Data\0105d50x.raw

Date : 03/07/01 3:24:05 PM

Method : ct-tp2.mth

Time of Injection: 01/05/01 2:44:50 PM

Start Time : 5.00 min

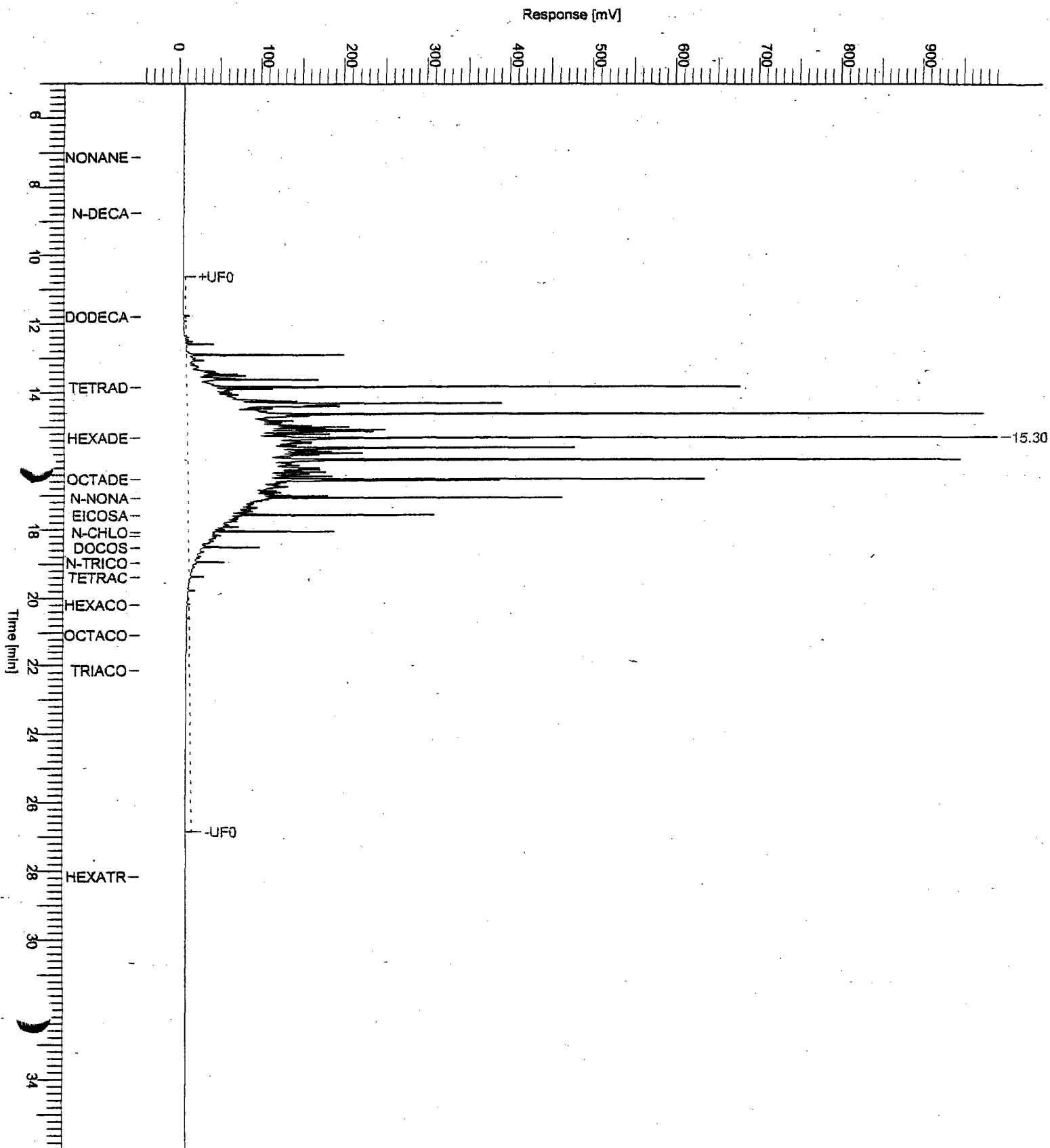
End Time : 35.99 min

Low Point : -47.30 mV

High Point : 993.88 mV

Plot Offset: -47.30 mV

Plot Scale: 1041.2 mV



Chromatogram

Sample Name : 0119h100x

Sample #: 0119h100x

Page 1 of 1

FileName : C:\PenExe\TcWS\Ver6.1.1\Data\0119h100x.raw

Date : 03/07/01 3:11:25 PM

Method : ct-lph2.mth

Time of Injection: 01/19/01 2:27:37 PM

SI me : 5.00 min

End Time : 35.99 min

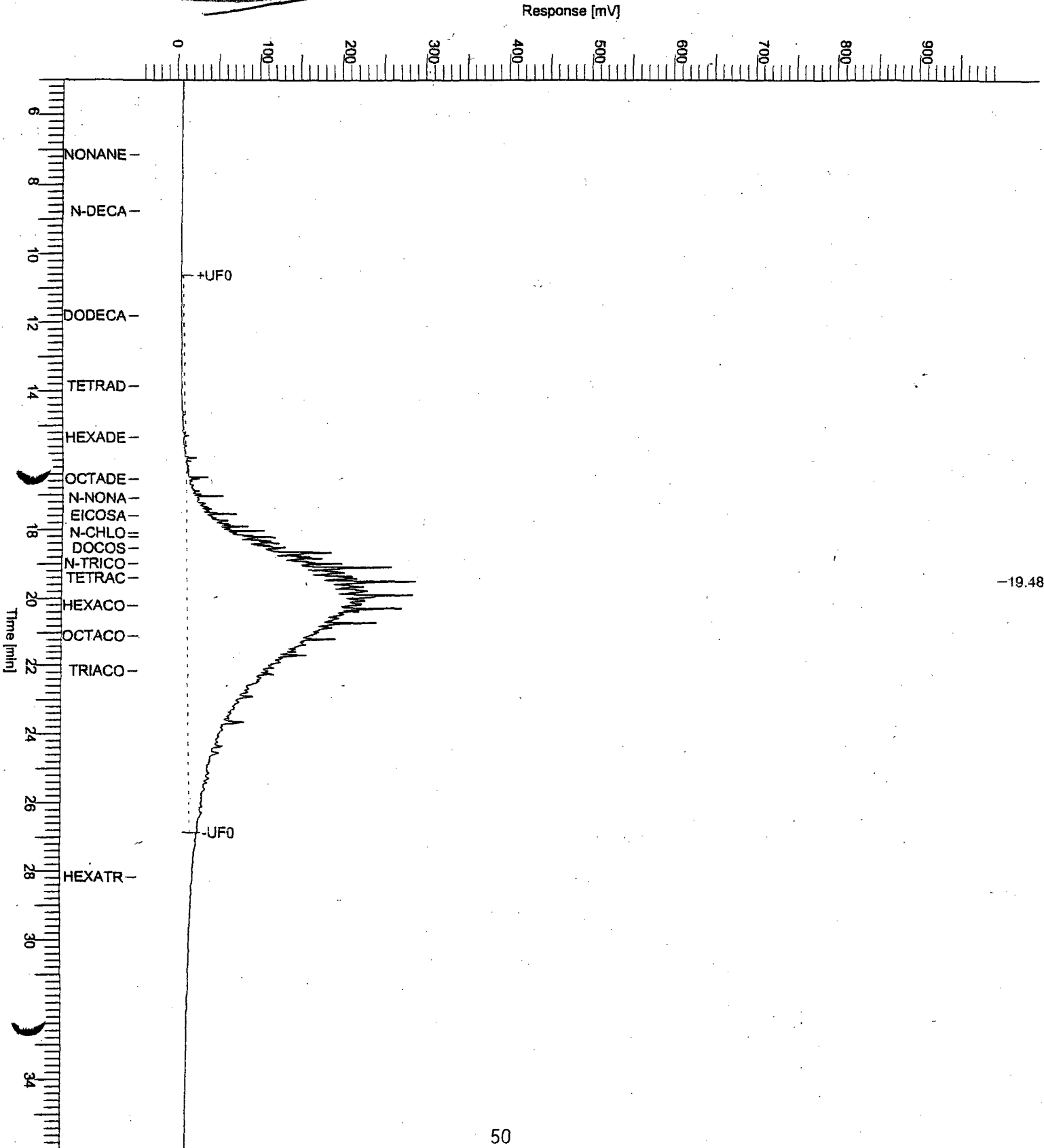
Low Point : -47.55 mV

High Point : 993.88 mV

Plb set: -47.55 mV

Plot Scale: 1041.4 mV

30-00-01



Chromatogram

Sample Name: gas std

Sample #: 0105g25x

Page 1 of 1

File Name : C:\PenExe\TcWS\Ver6.1.1\Data\0105g25x.raw

Date : 03/07/01 3:24:24 PM

Method : ct-tph2.mth

Time of Injection: 01/05/01 1:57:34 PM

Sample Size : 5.00 min

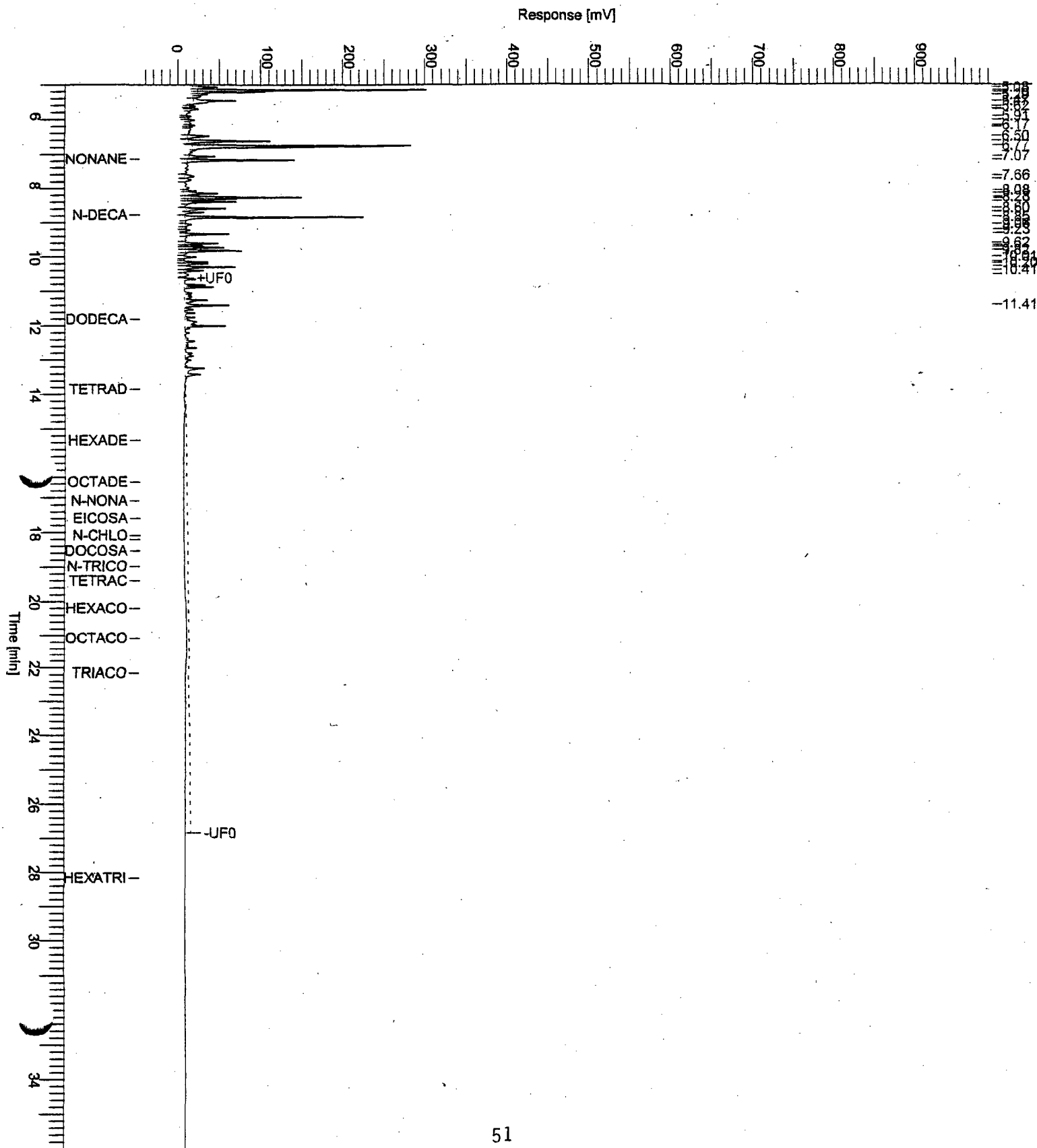
End Time : 35.99 min

Low Point : -47.38 mV

High Point : 993.88 mV

Plot Offset : -47.38 mV

Plot Scale: 1041.3 mV



Software Version: 4.1<2F12>

Date: 03/01/01 01:27 PM

Sample Name : ~~01020818-01-11-20~~ ACID/SULFUR C/U

D File : C:\TC4\ECD\P2245D2A.RAW Date: 03/01/01 10:18 AM

Sequence File: C:\TC4\ECD\0228PCB.SEQ Cycle: 72 Channel : A

Instrument : AUTOSYSTEM Rack/Vial: 0/35 Operator: manager

Sample Amount : 1.0000 Dilution Factor : 1.00

PCB 1254 Scan

Column A : J&W DB-35MS, 30 meter, 0.53 mm ID, 0.5 um film

Instrument ID : AutoSystem GC

Analyst : JLEE

Peak #	Component Name	Time [min]	Area [μ V·s]	Height [μ V]	Raw Amount
1		4.19	385166.80	56236.75	0.3852
2		4.65	38561.56	8375.53	0.0386
3		4.99	40298.59	8953.35	0.0403
4		6.22	53969.43	15556.72	0.0540
0 TMX		8.11	0.00	0.00	0.0000
5		10.30	20981.92	7885.52	0.0210
6		10.49	146731.49	21050.50	0.1467
7		10.72	63158.49	14712.70	0.0632
8		10.85	54605.87	13027.25	0.0546
9		11.03	87279.69	16901.97	0.0873
10		11.13	80859.76	14584.72	0.0809
11		11.23	69553.53	18960.78	0.0696
12		11.50	64382.71	22221.75	0.0644
13		11.78	28168.76	9911.29	0.0282
14		12.23	54909.46	12459.79	0.0549
15		12.65	23254.28	7605.72	0.0233
0 1254-1		14.00	0.00	0.00	0.0000
0 1254-2		14.34	0.00	0.00	0.0000
0 1254-3		14.97	0.00	0.00	0.0000
0 1254-4		15.20	0.00	0.00	0.0000
16 1254-5		16.73	41636.39	9458.60	0.0961
17		18.02	68688.18	9490.93	0.0687
18		18.17	72566.12	15787.98	0.0726
19		18.35	112207.47	21464.94	0.1122
20		18.54	357095.68	55885.69	0.3571
21		18.71	209368.33	41229.59	0.2094
22		19.00	715649.01	98294.58	0.7156
23		19.23	980711.23	112620.75	0.9807
24		19.36	312397.60	55332.41	0.3124
25		19.49	417711.86	79559.82	0.4177
26		19.61	308429.48	74297.41	0.3084
27		19.75	415100.72	87219.60	0.4151
28		19.88	229866.52	60795.81	0.2299
29		20.00	165314.46	42635.05	0.1653
30		20.14	67480.15	21737.13	0.0675
31		21.23	0.00	0.00	0.0000

5686105.56 1.03e+06 5.7406

Component	Expected Retention (Calibration File)
T	8.109
1254-1	14.005
1254-2	14.344
1254-3	14.972
1254-4	15.203
DCB	21.234

Chromatogram

Sample Name : 01020318-01 1:20 ACID/SULFUR C/U

FileName : C:\TC4\BCD\P2245D2A.RAW

Method : 12545PTA.MTH

Start Time : 2.89 min End Time : 29.72 min

Scale Factor: 1.0

Plot Offset: 53 mV

Sample #:

Date : 03/01/01 01:27 PM

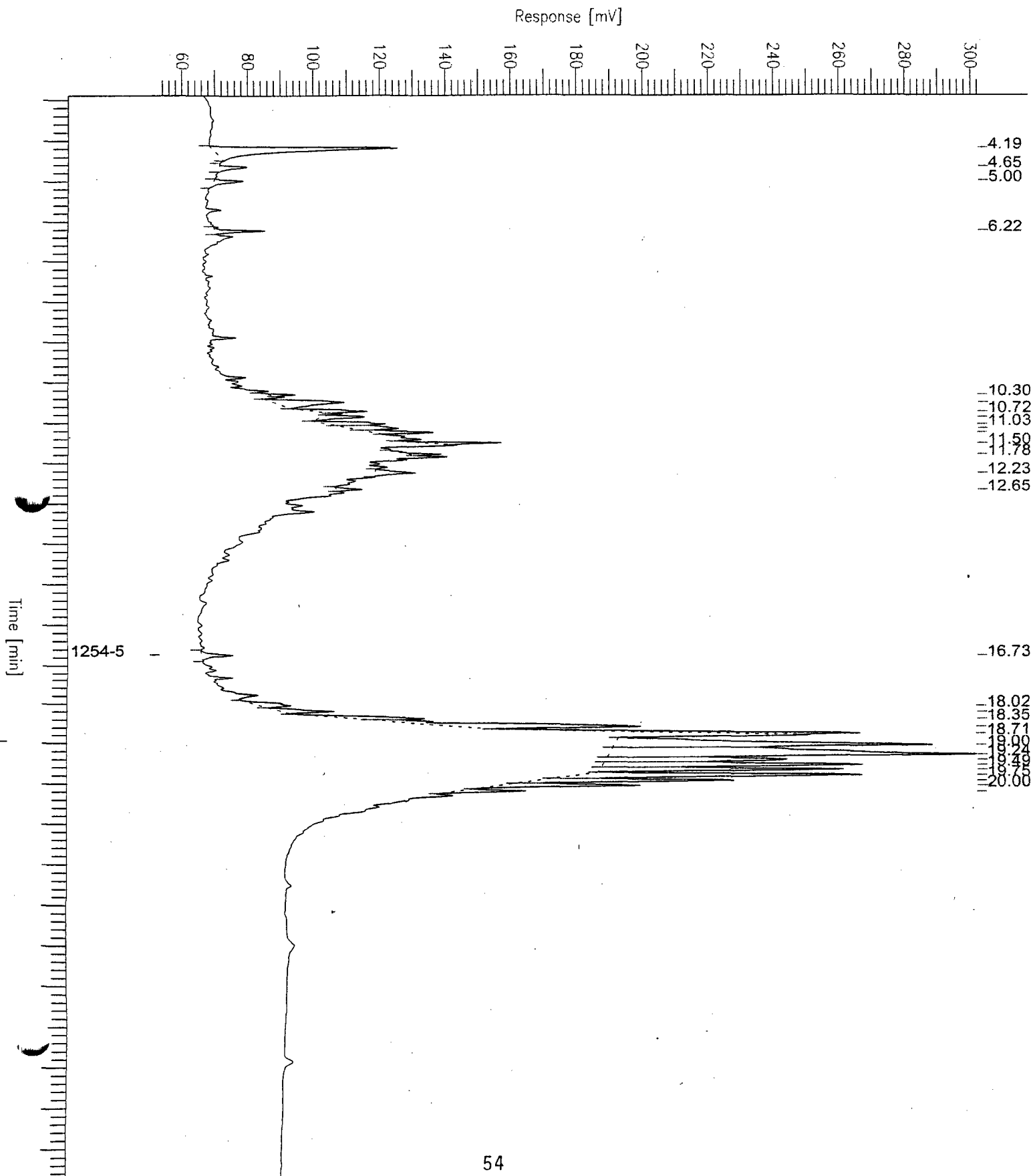
Time of Injection: 03/01/01 10:18 AM

Low Point : 53.14 mV

High Point : 302.33 mV

Plot Scale: 249.2 mV

Page 1 of 1



Software Version: 4.1<2F12>

Date: 03/01/01 01:23 PM

Sample Name : ~~01020318-01~~ ACID/SULFUR C/U

File : C:\TC4\ECD\P02245A.RAW Date: 03/01/01 10:56 AM

Sequence File: C:\TC4\ECD\0228PCB.SEQ Cycle: 74 Channel : A

Instrument : AUTOSYSTEM Rack/Vial: 0/36 Operator: manager

Sample Amount : 1.0000 Dilution Factor : 1.00

PCB 1254 Scan

Column A : J&W DB-35MS, 30 meter, 0.53 mm ID, 0.5 um film

Instrument ID : AutoSystem GC

Analyst : JLEE

Peak #	Component Name	Time [min]	Area [μ V·s]	Height [μ V]	Raw Amount
1		3.21	36365.55	4999.90	0.0364
		4.19	3863187.33	516896.84	3.8632
		4.66	526278.98	98855.39	0.5263
		5.00	378638.25	81001.73	0.3786
5		5.72	180505.12	48526.37	0.1805
6		6.23	457294.60	143812.06	0.4573
7		6.38	117186.68	20673.29	0.1172
8		6.84	75744.01	25350.17	0.0757
9		7.38	70608.09	22821.04	0.0706
10	TMX	8.11	0.00	0.00	0.0000
10		8.47	63563.83	12322.29	0.0636
11		8.91	62105.24	16217.36	0.0621
12		9.16	45783.24	16913.52	0.0458
13		9.25	26731.75	10735.88	0.0267
14		9.47	57534.89	8075.79	0.0575
15		9.64	51161.85	13448.59	0.0512
16		9.89	291672.37	63043.07	0.2917
17		9.99	118346.48	35695.74	0.1183
18		10.11	79803.92	22447.04	0.0798
19		10.25	359811.21	80551.40	0.3598
20		10.33	297852.24	99430.11	0.2979
21		10.39	225163.85	76717.41	0.2252
22		10.53	1629260.93	209031.41	1.6293
23		10.75	1151065.41	208806.89	1.1511
24		10.82	353484.56	155123.23	0.3535
25		10.90	1148019.26	198942.91	1.1480
26		11.07	1254889.61	247719.51	1.2549
27		11.18	1406907.18	236821.30	1.4069
28		11.29	1547984.80	289545.02	1.5480
29		11.38	796288.21	192154.61	0.7963
30		11.46	917500.08	200941.61	0.9175
31		11.56	2602330.12	378839.89	2.6023
32		11.72	183739.92	69615.52	0.1837
33		11.78	259394.18	77711.43	0.2594
34		11.84	545010.25	163932.13	0.5450
		11.92	472764.56	164615.87	0.4728
36		12.09	109597.99	47750.85	0.1096
37		12.17	163505.64	55822.39	0.1635
38		12.31	722630.25	136576.84	0.7226
39		12.54	56816.61	18275.09	0.0568
40		12.73	334224.49	79140.06	0.3342
41		12.82	72560.24	28301.36	0.0726
42		13.07	96129.85	29152.34	0.0961
43		13.13	284098.58	57237.20	0.2841

Peak #	Component Name	Time [min]	Area [μ V-s]	Height [μ V]	Raw Amount
44		13.28	606387.60	91291.15	0.6064
		13.72	22529.83	11224.64	0.0225
45	1254-1	13.95	47411.28	11398.06	0.1721
47	1254-2	14.31	31024.23	10518.70	0.0552
0	1254-3	14.89	0.00	0.00	0.0000
0	1254-4	15.12	0.00	0.00	0.0000
48		15.52	65765.29	12030.02	0.0658
0	1254-5	16.62	0.00	0.00	0.0000
49		16.78	232793.19	76479.01	0.2328
50		17.08	72212.77	16704.59	0.0722
51		17.16	92465.58	22901.70	0.0925
52		17.37	124669.43	37313.93	0.1247
53		17.64	44603.48	7775.20	0.0446
54		17.81	346864.92	54715.40	0.3469
55		18.06	736778.23	93538.23	0.7368
56		18.22	912597.15	141439.57	0.9126
57		18.39	1646937.38	248129.38	1.6469
58		18.58	4876933.50	502770.88	4.8769
59		18.75	7662700.74	756412.96	7.6627
60		19.04	9458979.23	768422.40	9.4590
61		19.28	9803991.22	750756.58	9.8040
62		19.41	3989915.94	603182.77	3.9899
63		19.54	4517942.82	680511.20	4.5179
64		19.67	4013344.74	649482.34	4.0133
65		19.80	4502562.72	651960.53	4.5026
66		19.93	2581345.86	496004.61	2.5813
67		20.05	2558990.11	369254.75	2.5590
68		20.19	1383525.10	225803.84	1.3835
69		20.30	1100908.80	129709.12	1.1009
0	DCB	21.12	0.00	0.00	0.0000
70		22.52	104031.65	15444.59	0.1040
71		26.84	131762.28	12808.56	0.1318

85163517.26 1.21e+07 85.3123

Missing Component Report

Component Expected Retention (Calibration File)

TMX	8.109
1254-3	14.895
1254-4	15.124
1254-5	16.618
DCB	21.125

Chromatogram

Sample Name : 01020318-01 ACID/SULFUR C/U

FileName : C:\TC4\BCD\P02245A.RAW

Me : 12545PTA.MTH

Stime : 2.89 min

Scale Factor: 1.0

End Time : 29.69 min

Plot Offset: 29 mV

Sample #:

Date : 03/01/01 01:23 PM

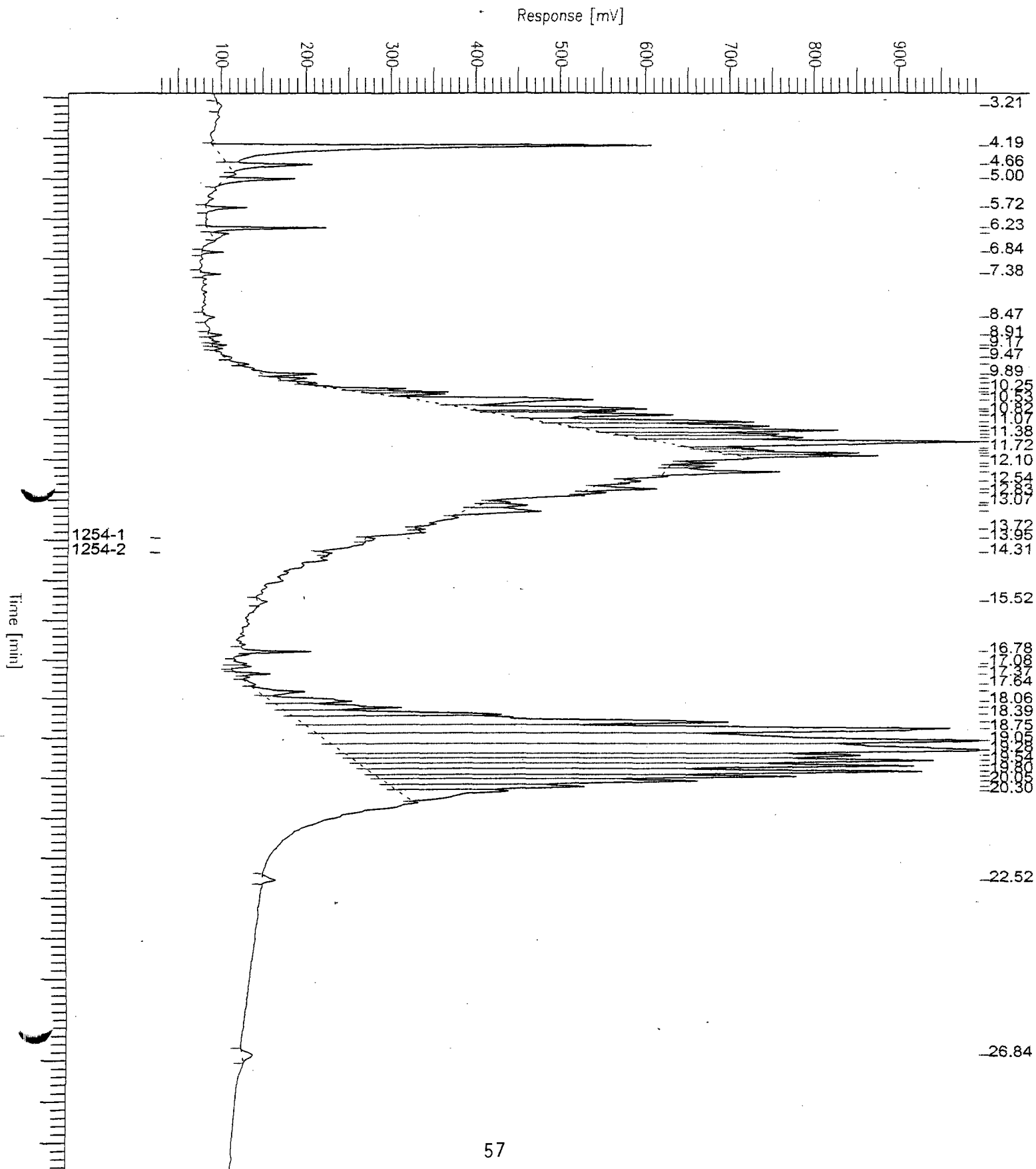
Time of Injection: 03/01/01 10:56 AM

Low Point : 28.68 mV

Plot Scale: 965.2 mV

Page 1 of 1

High Point : 993.88 mV



Job Number MAC0036.CA

Project Manager RDM

CHAIN OF CUSTODY

Place & Address of Collection *Macdermid*

Samplers Name (Signature)

Waterbury CT

Samplers Name (Signature) George H. Hagg

Sample I.D.	Sample Location	Container Type	Total Volume	Preservative	Date	Time	Sample Matrix	Remarks
GZ-2	Monitor	GIP	3.08L	cool, HCl,	2-8-01	PM	Water	01020133-01
GZ-3	well			HNO ₃ , NaOH				-02
GZ-5								-03
GZ-6								-04
GZ-7								-05
GZ-8								-06
GZ-8A								-07
GZ-9								-08
MAC-1								-09
MAC-1A								-10

Relinquished By (Signature) 

Received By (Signature) Kate J. Walker

Date 2-8-01

Time 1648

Relinquished By (Signature) _____

Received By (Signature) 

Date 2-9-01

Time 1434

Name & Address of Laboratory:

FAS - Laboratory - Mike Downin

[illegible]

Remarks:

Pls. provide QA/QC Metals Filtered in Field.

TAT 2/22

Abbreviations: G - Glass P - Plastic A - Amber T - TCLP Analysis M - Mass Analysis S - SPLP Analysis

Job Number **MAC0036.CA**

Project Manager *RDW*

CHAIN OF CUSTODY

Place & Address of Collection

Macdermid
Waterbury Ct

Samplers Name (Signature)

Sampler's Name (Signature)

[illegible]

Relinquished By (Signature)

Received By (Signature) _____

Date 2-12-01

Time 12:57

Relinquished By ~~(Signature)~~

Received By (Signature)

Date 2-13-01

Time 12:56

Name & Address of Laboratory:

EAS-Laboratory - Waterbury

Parameters	Sample ID					
Dissolved	MAE-5	MAE-6	TP Blank	MAE-1	GZ-9	
B PCRA	X	X				
Metals +	X	X				
Cu, Ni, Zn:	X	X				
Fluoride	X	X				
CNT + CN ⁴	X	X				
8260	X	X	X			
Total						
B PCRA						
Metals +						
Cu, Ni, Zn:						
Oil - IR						
Hydrocarbon						
Fingerprint						

Remarks:

Pls provide QA/QC

01020318-01

MAC-5 MAC-6 Filtered in Field:

MIAC-1 Total Metals. 2/19

Abbreviations: G - Glass P - Plastic A - Amber T - TCLP Analysis M - Mass Analysis S - SPLP Analysis

Date: May 21, 2001
Rev. No. 1

APPENDIX G
FEBRUARY 2001 WELL RECEPTOR SURVEY

WELL RECEPTOR SURVEY

**MacDERMID, INC.
526 HUNTINGDON AVENUE
WATERBURY, CONNECTICUT**

HRP #MAC0036.CA

February 2001

Revised
May 21, 2001

Prepared by:

**Matthew T. Bruckner
Project Geologist**

**Richard D. McFee, P.E.
Associate Vice President
Engineering Services**

Submitted to:

**Mr. Greg Strong
MacDermid, Inc.
245 Freight Street
Waterbury, CT 06702**

Submitted by:

**HRP Associates, Inc.
Engineering & Geology
167 New Britain Avenue
Plainville, CT 06062**

**US EPA New England
RCRA Document Management System
Image Target Sheet**

RDMS Document ID # 100824

Facility Name: MACDERMID INC

Facility ID#: CTD001164599

Phase Classification: R-1B

Purpose of Target Sheet:

☒ **Oversized** (in Site File) ☐ **Oversized** (in Map Drawer)

☐ **Page(s) Missing** (Please Specify Below)

☐ **Privileged** ☐ **Other** (Provide
Purpose Below)

Description of Oversized Material, if applicable:

FIGURE 2: RECEPTOR SURVEY BASE MAP (1 OF 2)

☒ **Map** ☐ **Photograph** ☐ **Other** (Specify Below)

*** Please Contact the EPA New England RCRA Records Center to View This Document ***

**US EPA New England
RCRA Document Management System
Image Target Sheet**

RDMS Document ID # 100824

Facility Name: MACDERMID INC

Facility ID#: CTD001164599

Phase Classification: R-1B

Purpose of Target Sheet:

☒ **Oversized** (in Site File) ☐ **Oversized** (in Map Drawer)

☐ **Page(s) Missing** (Please Specify Below)

☐ **Privileged** ☐ **Other** (Provide
Purpose Below)

Description of Oversized Material, if applicable:

FIGURE 2: RECEPTOR SURVEY BASE MAP (2 OF 2)

☒ **Map** ☐ **Photograph** ☐ **Other** (Specify Below)

*** Please Contact the EPA New England RCRA Records Center to View This Document ***

3.0 IDENTIFICATION OF POTENTIAL RECEPTORS

The following sources of data and investigation methodologies for the identification of possible industrial water supply wells/monitor wells have been employed by HRP during this receptor survey. Table 1 summarizes the findings of this survey and indicates the data sources which provided documentation for the resulting confirmation of water supply (private well or public water). These sources are keyed to Tables 1 and 2 by the circled numbers (①,②, etc). Table 2 lists all the properties within the selected area by street address and Waterbury Assessor's Department map, block, and lot numbers. Property owners' names are listed, as well as the reported confirmation status (from the Waterbury Water Company/Waterbury Tax Assessor's Office) of the public water supply connection to the site.

Data Sources:

- ① Connecticut Department of Environmental Protection (CT DEP) Public Water Supply Atlas
- ② Published hydrologic data
- ③ Windshield/walking survey of the site vicinity (visual evidence of well, fire hydrants, water gate valves, etc.)
- ④ Water supply well completion reports located at the U.S.G.S. Water Resource Division
- ⑤ Water supply well completion reports located at the Waterbury Health Department
- ⑥ Queries of the Waterbury Water Company
- ⑦ City of Waterbury Tax Assessor's Field Card
- ⑧ Queries of the Waterbury Engineering Department
- ⑨ Connecticut Department of Environmental Protection (CT DEP) P-5 files

TABLE 1 SURVEY FINDINGS				
HRP Figure 2 Designation	Map/Block/Lot #	Street Address	Confirmed Industrial Supply or Monitor Well	Confirmed Public Water Supply
1	143/863/2	327 Huntingdon Ave. (IME Associates, LLC)	Yes ^{1,3} ④⑦	Yes ² ③⑥
2	143/783/1	346 Huntingdon Ave. (MP&P)	Yes ^{1,3} ⑤⑦	Yes ² ③⑥
3	143/864/18	526 Huntingdon Ave. (MacDermid, Inc.)	Yes ^{1,3} ④⑦	Yes ² ③⑥
4	143/864/18	420 Huntingdon Ave. (currently MacDermid, Inc.)	Yes ^{1,3} ④⑦	Yes ² ③⑥
5	160/783/7	172 E. Aurora Street (U.S. Prolam/Ceilcote)	Yes ^{1,3} ④⑦	Yes ^{2,4} ③⑥⑨
6	160/707/2	237 E. Aurora Street (LEA Manufacturing)	Yes ^{1,3,4} ④⑤⑦⑨	Yes ^{2,4} ③⑥⑨
7	160/783/1	E. Aurora Street (Waterbury Rolling Mills)	Yes ^{1,3,4} ④⑤⑦	Yes ^{2,4} ③⑥⑨

¹ = Well Completion reports identified at the U.S.G.S. or Waterbury Health Department have been included in Appendix A.
² = The Waterbury Water Company records indicate connection to a publicly available water supply (Appendix B).
³ = The Waterbury Tax Assessor's Field Cards have been included in Appendix C.
⁴ = The Connecticut Department of Environmental Protection (CT DEP) Bureau of Water Management P-5 Files are included in Appendix D.

TABLE 2
PUBLIC WATER SUPPLY DATA

Map #	Block	Lot #	Street Address	Owner Name	Connected to Public Water
128	864	3	526 Huntingdon Avenue	MacDermid, Inc.	Yes⑥⑦
129	865	7	000 E. Aurora Street	MacDermid, Inc.	Yes⑥⑦
129	707	8	Huntingdon Avenue	City of Waterbury (Recreation Field)	Yes⑦
129	707	10	7 East Aurora Street	D'Angelo, Anthony P. & Concetta K.	Yes⑥⑦
129	707	12	11 E. Aurora Street	Farr, Leon J. Inc.	Yes⑥⑦
129	707	13	48 Jarrett Avenue	Union Glen Associates, Inc.	Yes⑥⑦
129	707	15	21 E. Aurora Street	City of Waterbury (Water Department)	Yes⑥⑦
129	865	3	2 E. Aurora Street	Fazo, Sali	Yes⑥⑦
129	865	5	000 E. Aurora Street	Fazo, Sali	Yes⑥⑦
129	865	6	24 E. Aurora Street	Tuttle, Pauline T. & Hallie A.	Yes⑦
129	865	4	562 Huntingdon Avenue	Fazo, Sali	Yes⑦
143	707	19	111 E. Aurora Street	Boas, Andrew M. & Cecelia A. (Bernier as Trustees)	Yes⑦
143	707	20	123 E. Aurora Street	Sullivan, James S. Cable Co. Inc.	Yes⑥⑦
143	707	191	117 E. Aurora Street	B & V Realty LLC	Yes⑥⑦
143	707	192	75 E. Aurora Street	Boas, Andrew M. & Cecelia A. (Bernier as Trustees)	Yes⑥⑦
143	777	5	447 Huntingdon Avenue	Filippone, Mary J.	Yes⑥⑦
143	863	2	327 Huntingdon Avenue	IME Associates, LLC	Yes⑥⑦
143	863	3	345 Huntingdon Avenue	D'Agostino, Mario and Michael A.	Yes⑥⑦
143	863	4	407 Huntingdon Avenue	Salvatore, Gervase and Carmela	Yes⑥⑦
143	864	18	000 E. Aurora Street	MacDermid, Inc.	Yes⑥⑦
143	783	1	346 Huntingdon Avenue	Mirror, Polishing and Plating (MP&P)	Yes⑥⑦
143	783	7	Huntingdon Avenue	Halperin Real Estate, LLC	Yes⑦
143	783	8	Huntingdon Avenue	Halperin Real Estate, LLC	Yes⑦
143	783	9	4 Huntingdon Place	Cronin, Dennis C. & Linda L.	Yes⑥⑦
143	783	10	8 Huntingdon Place	Weymer, William H. & Sandra M.	Yes⑥⑦
143	783	11	14 Huntingdon Place	Melendez, Wilfredo	Yes⑥⑦
143	783	12	18 Huntingdon Place	Hardt, William B.	Yes⑥⑦
143	783	13	22 Huntingdon Place	Phillips, Joan C.	Yes⑥⑦
143	783	14	17 Huntingdon Place	Grimsley, Edna P.	Yes⑥⑦
143	783	15	11 Huntingdon Place	Zuta, Zinije	Yes⑥⑦
143	783	16	7 Huntingdon Place	Jacques, David & Lori Ann	Yes⑥⑦
143	783	17	1 Huntingdon Place	Brousseau, George D.	Yes⑥⑦
143	783	21	150 E. Aurora Street	Stein, Harold	Yes⑥⑦
143	783	111	348 Huntingdon Avenue	Halperin Real Estate, LLC	Yes⑥⑦
143	783	211	172 E. Aurora Street	Halperin Real Estate, LLC	Yes⑥⑦
144	707	1	37 E. Aurora Street	Ryder Truck Rental Inc.	Yes⑥⑦
144	707	2	51 E. Aurora Street	Boas, Andrew M. & Cecelia A. (Bernier as Trustees)	Yes⑥⑦
160	707	2	237 E. Aurora Street	OLIG LTD.	Yes⑥⑦

TABLE 2
PUBLIC WATER SUPPLY DATA

Map #	Block	Lot #	Street Address	Owner Name	Connected to Public Water
160	707	3	225 E. Aurora Street	Arev I Limited Partnership	Yes⑦
160	707	4	181 E. Aurora Street	Arev I Limited Partnership	Yes⑥⑦
160	707	6	137 E. Aurora Street	137 E. Aurora LLC	Yes⑥⑦
160	707	61	000 E. Aurora Street	Stein, Harold (Trustee)	Yes⑦
160	783	1	240 E. Aurora Street	Waterbury Rolling Mills, Inc.	Yes⑥⑦
160	783	7	172 E. Aurora Street	Etherington, Geoffrey II	Yes⑥⑦
161	707	1	173 E. Aurora Street	VBL Realty LLC	Yes⑥⑦

Descriptions of the type(s) of wells identified in the well completion reports for the above-tabled properties are as follows:

- 327 Huntingdon Ave. – Installation of two monitoring wells, dated 11/10/98;
- 346 Huntingdon Ave. – Installation of a ground water remediation well, dated 4/21/89;
- 526 Huntingdon Ave. – Location of six (6) monitoring wells, dated 1/11/95;
- 420 Huntingdon Ave. – Location of one (1) water supply well, dated 1/10/65;
- 172 E. Aurora St. – Installation of two (2) monitoring wells, dated 10/1/98;
- 237 E. Aurora St. – Installation of one (1) industrial water supply well, dated 11/1/67;
- 000 E. Aurora St. – Identification of two (2) industrial water supply test wells, dated 8/1/78 and 3/31/79.

The operational status of these industrial water supply wells is currently unknown.

According to the 1974 State of Connecticut Water Resources Bulletin No. 19, Hydro-geologic Data for Housatonic River Basin, there are five water supply wells located within the designated search radius (Figure 2).

- Wells #(12,12A), located at 526 Huntingdon Ave. (Formerly Waterbury Steel Ball Co.), were completed in 1925 and 1947, respectively. Well #12 is listed as currently unused. Well # 12A is listed as a well used to withdraw water for air conditioning.
- Wells #(341, 341AB), located at 237 E. Aurora St. (LEA Manufacturing), were completed in 1957, 1966, and 1967, respectively. Well #341 is listed as currently unused. Wells #341A and B are listed as wells used to withdraw water for industrial purposes.
- Well #(343), located at E. Aurora St. (Formerly Brock-Hall Dairy Co.), was completed as a well used to withdraw water in 1945 for air conditioning.

Wells #12 and #12A, which are located at MacDermid's Gear Street Building, were operated by the former Waterbury Steel Ball Company. These wells are not used by MacDermid, Inc. and operation of these is believed to have ceased prior to MacDermid, Inc.'s occupancy in 1987. The operational status of the remaining wells (#341, 341B and 343) is currently unknown.

Representatives of the City of Waterbury Engineering Department reported that public water supply lines are installed and available to all occupants in the site vicinity.

Multiple occupants were identified during the January 30, 2001 windshield/walking survey on several parcels located on the south side of E. Aurora Street. Several of these businesses were not listed on the Waterbury Water Company's lists as having public water. These properties map/lot/block numbers (143/707/19, 143/707/20, 143/707/191, 143/707/192, 160/707/6, 160/707/61, 161/707/1) were identified and cross-checked against the Tax Assessors Maps and Field Cards. According to the Field Cards, all map/block/lot parcels are serviced by public water (Appendix C).

4.0 CONCLUSIONS

Five water supply wells were identified in the 1974 State of Connecticut Water Resource Bulletin No. 19, Hydrogeologic Data for Housatonic River Basin. The operational status of these wells is currently unknown. If confirmation of the status of the identified wells is necessary, then an inquiry directed towards the current occupants may be appropriate.

Ten ground water monitoring wells and one ground water remediation well have been identified within the designated search radius surrounding the subject site. Six of these monitoring wells are located on the subject property. Four industrial water supply wells (status unknown) have been identified within the designated search radius. A former occupant of a portion of the current subject site (Raferty Brown Steel Co.) utilized a supply well. The operational status of these industrial water supply wells and monitoring wells is currently unknown. If confirmation of the status of the identified wells is necessary, then an inquiry directed towards the current occupants may be appropriate.

Several occupants along the south side of E. Aurora Street are not identified on the Waterbury Water Company list, but are recorded as being on public water per the Waterbury Tax Assessor's Field Cards. If confirmation of the status of the occupants' public water status is necessary, then an inquiry directed towards the current occupants may be appropriate.

The Naugatuck River and associated wetlands, located approximately 1,000 feet east of the subject site in a hydrogeologic cross to down-gradient position, is considered a potential receptor of any ground water contamination potentially originating from the site. The Naugatuck River has been assigned a water quality classification of "C/B", indicating that it is presumed to be significantly degraded and unsuitable as a potential drinking water supply.

APPENDIX O
COPIES OF AERIAL PHOTOGRAPHS
(1965, 1970, 1975, 1980, 1986, AND 1990)

1965
MAC0036.CA



1970
MAC0036.CA

MacDermid, Inc. Facility



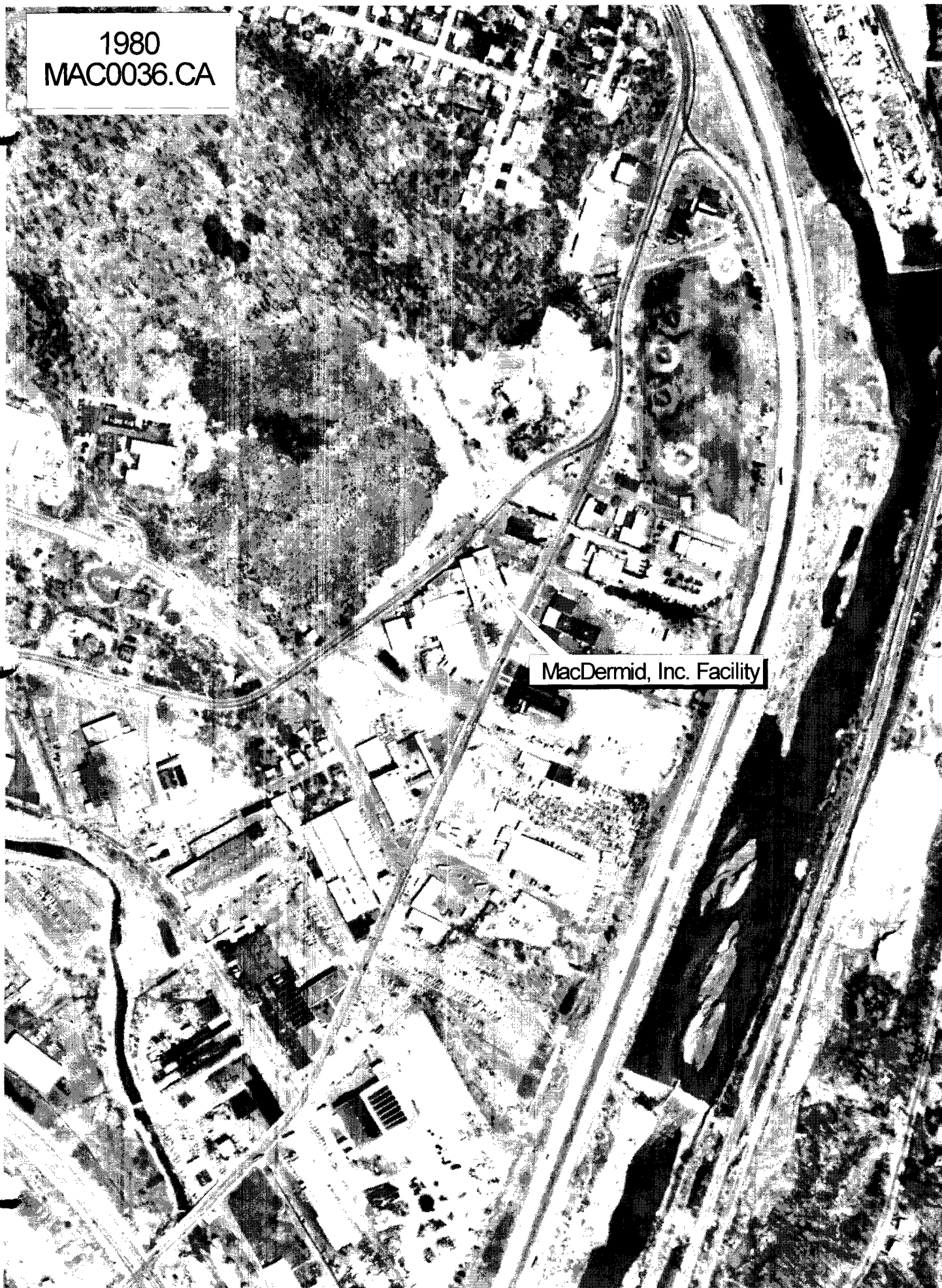
1975
MAC0036.CA

MacDermid, Inc. Facility

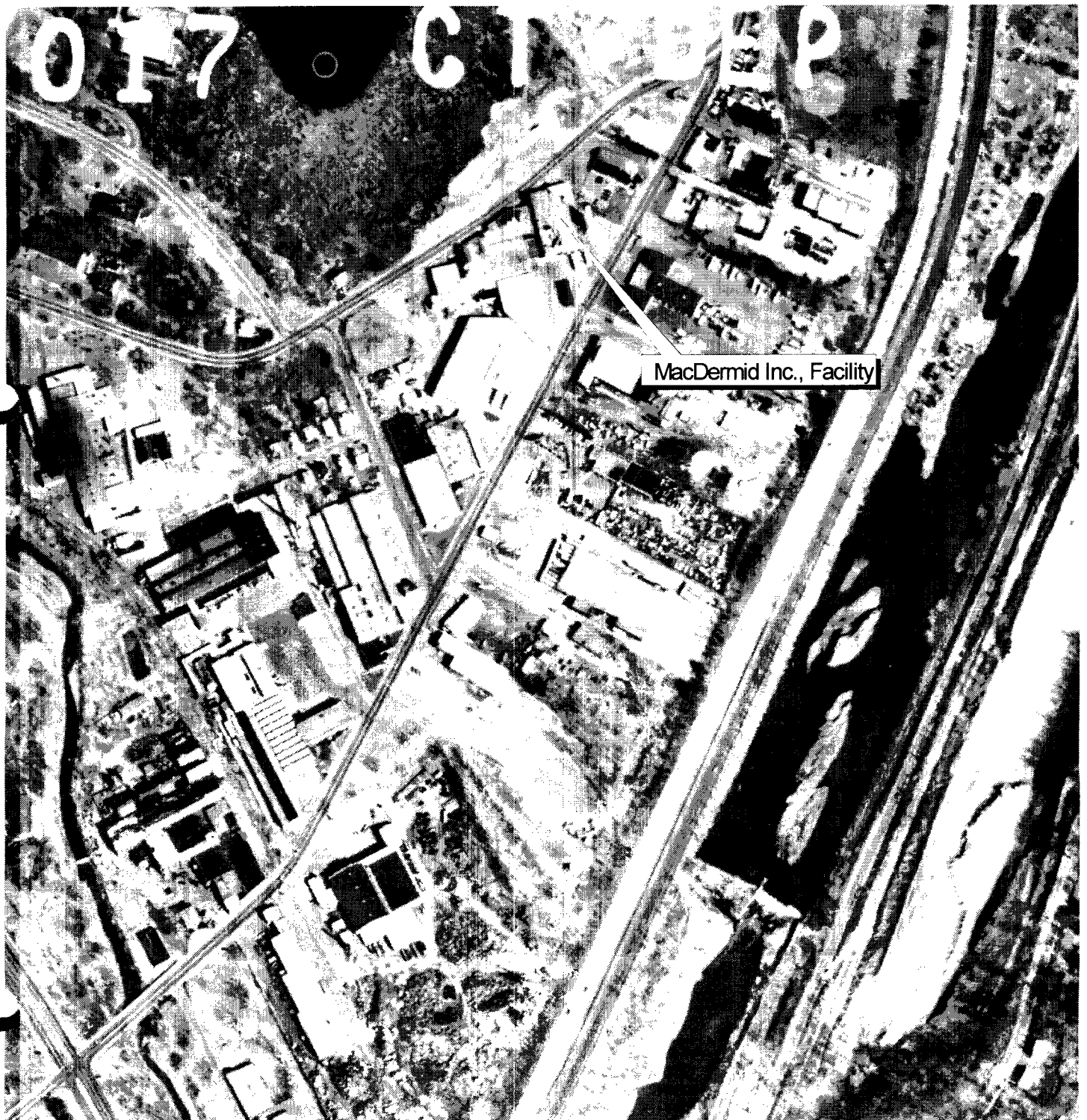
This is a high-contrast, black and white aerial photograph of an industrial facility. The facility consists of several large, rectangular buildings with flat roofs, arranged in a cluster. There are numerous parking lots and access roads visible. To the left of the main building complex is a large, dark, irregularly shaped area that appears to be a wooded or undeveloped hillside. To the right of the facility is a body of water, possibly a river or a large pond. The overall image has a grainy, high-contrast quality typical of older aerial photography.

1980
MAC0036.CA

MacDermid, Inc. Facility



1986
MAC0036.CA



1990
MAC0036.CA

